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UNEP Risoe Centre

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Acronyms & Abbreviations

ADPME	Agence de Développement des Petites et Moyennes Entreprises
APIX	Agence Nationale chargée de la Promotion de l'Investissement et des Grands Travaux
AREED	African Rural Energy Enterprise Development
ASER	Agence Sénégalaise pour l'Electrification Rurale
AGI	Association of Ghana Industries
BDS	Business Development Services
CNESOLER	Centre National d'Energie Solaire et Renouvelable
E+Co	Public Purpose Investment Company which developed the REED enterprise centered model
FARE	Fonds d'Auto Renouvelable pour Emploi
FNPJ	Fonds National de Promotion de la Jeunesse
FNDP	Fifth National Development Plan
FINCA	Foundation for International Community Assistance
FDI	Foreign Direct Investment
IFIs	International Financial Institutions
KITE	Kumasi Institute of Technology and Environment, AREED partner
LPG	Liquid Petroleum Gas
LPDSE	Policy Letter on the Development of the Energy Sector
MFC	Mali Folkecenter, AREED partner
NBSSI	National Board for Small Scale Industries
NEP	National Energy Policy
OMVG	Organisation pour la Mise en Valeur du Fleuve Gambie
OMVS	Organisation pour la Mise en Valeur du Fleuve Sénégal
PASF:	Forestry Sector Adjustment Programme
PETROSEN	Senegalese Oil Company
PREDAS	Programme des Energies Domestiques, Alternatives et de Substitution (Domestic, Alternative, and Substitution Fuels Programme)
RENES	Redéploiement Energétique du Sénégal (Energy Redeployment in Senegal)
RPTES	Regional Program of Traditional Energy Sector
SADC	Southern African Development Community
SME	Small and Medium Enterprise
SEDB	Small Enterprises Development Board
SAPP	Southern African Power Pool
SBM	Single Buoy Mooring
SME	Small and Medium Sized Enterprises
TOE	Tonnes Oil Equivalent
SAR	Société Africaine de Raffinage
SENELEC	Société Nationale d'Electricité du Sénégal
SNCS	Société Nationale des Charbonneries du Sénégal
SOCOCIM	Société Commerciale de Ciment
SONACOS Sénégal	Société Nationale de Commercialisation des Oléagineux du
WAEMU:	West African Economic and Monetary Union

REED	Rural Energy Enterprise Development
SHS	Solar-home-system
Sodigaz	Société de Distribution de Gaz SARL, AREED entreprise in Mali
TCCL	Tanga Cement Company Ltd, customer of BETL
USISS	Unité Semi-Industriel de Séchage Solaire, AREED entreprise in Mali
ZESCO	Zambian Electricity Supply Corporation Limited

Second Draft

Executive Summary

In the five countries[1] that are part of the African Rural Energy Enterprise Development (AREED) programme, one notes that SMEs are slowly gaining some currency in a growing liberalised and globalised African environment. They now represent a viable segment of private sector development and their contribution to the general economy is expected to increase. Their newly acquired status is perhaps reflected in the interest that national banks have taken to deliberately "court" SMEs and bring them into the formal banking process as a way of tapping into profits that can be gained from the provision of loans to SMEs. Equally, the proliferation of institutions supporting SMEs is a testament to increased SME activity and shifting perceptions that private sector development needs to be rooted in an enabling environment that will foster entrepreneurship and boost the emergence of local commercial products. Some countries such as Senegal have even gone one step further down the institutional line, by drawing an SME charter. In other countries such as Zambia, the government has clearly indicated its intention to reduce the current barriers that are constraining the growth and expansion of SME development. Countries such as Ghana have created a special private sector Ministry and private sector development is singled out as one of the President's Special Initiatives, targeted to contribute to economic development and poverty reduction. Meanwhile, Mali and Tanzania have outlined a number of incentives in SME policy documents intended to boost entrepreneurial culture and lay the foundation of a strong an effective industrial base.

The SME sector presents a number of opportunities in agro-industry, textiles, tourism and the energy sector. However, in spite of strong political will to make SMEs an engine of growth, the energy sector is not singled out as a key area to widen energy access, boost demand in energy efficiency products and expand the uptake of renewables to a growing number of energy poor people living in under-served areas. Indeed, only a limited number of entrepreneurs are able to tap into the sector due to limited awareness and high capital costs. These are constraining factors limiting the entry of SMEs and the hoped for uptake of new and efficient energy technologies. The AREED scheme has, over the past five years, sought to craft an ingenious plan of loan provision and capacity development (development of a bankable business plan, analysis of market conditions and identification of efficient modern energy system that would meet the needs of under-served areas) provided to entrepreneurs who have little prospect of securing capital to invest in viable energy activities.

However, in spite of new opportunities and emerging energy agencies in many of the AREED countries, there are several hurdles that energy agencies are faced with. The energy market is a relatively new market and although many governments are moving towards privatisation of the energy sector, the delivery of energy services is mainly a public utility venture controlled and maintained by state monopolies and parastatals. Opening up the distribution system and doing away with current monopolies has proven to be difficult to operationalise. Privatisation has made little difference as power cuts tends to be perceived as a given in most African capitals and rural communities remain the underdogs with little or no access to modern forms of energy. Energy SMEs then, tend to have to deal with a long list of constraints relating to access to finance, poor visibility, minimal support from government to help in the promotion of energy efficient products and renewables, limited rural markets, weak and non-existent energy infrastructures and, not least, a sector that is inherently highly capital intensive. In addition, in spite of strong pledges on paper to make the necessary adjustments that would transform the sector to one where the private sector is given full license to participate, the reality of energy service delivery in all the five AREED countries tells a different story both in terms of supply and demand side management.

[1] These countries are: Ghana, Mali, Senegal, Tanzania and Zambia

Policies are often mere statements of intent with few resources allocated for implementation and no guidelines on how these could be implemented or evaluated. This is exarcerbated by limited knowledge of energy efficiency products and the associated opportunities and constraints. Consequently, confidence in the energy sector is still relatively low. This is in spite of a new dynamism spurred on by the emergence of new energy institutions, and a new attitude towards energy services premised on the need to take into account the full menu of energy services serving both practical and strategic needs and thus meeting the aspirations of the Millennium Development Goals. The study looks at the full range of difficulties that entrepreneurs are faced with especially those struggling to eke out a living in the energy sector and makes a number of recommendations relating to policy, capacity development and market orientation on how these could be addressed. Hence, the study is intended as a scoping study – outlining and analysing the diverse problems that entrepreneurs in the energy and other sectors are dealing with and attempts to explain that these problems will persist unless government is able to level the playing field between the small players (SME entrepreneurs) and their big brothers (private entities bigger in scale , turnover, financial clout and ability to influence the system), put in place fiscal incentives that will boost the uptake of renewables and, above all, embark on an effective awareness raising campaign which would help to displace current traditional fuel consumption patterns and pave the way for viable emerging biofuels, energy efficiency products and renewables.

Background

The following is an analytical review of the policy contexts in Ghana, Mali, Senegal and Tanzania with regard to the development and expansion of Small and Medium Enterprises. The paper gives an in-depth review of the countries involved and attempts to analyse the institutional setting in order to gauge the effectiveness of the policies put in place to support SME development. The objective of the mission was to critically review existing policies, rules and regulations in the above countries and to appraise the main barriers and opportunities that are helping or hindering the creation, expansion and progress of SMEs in general with particular emphasis on energy SMEs. The study is undertaken within the context of the African Rural Energy Enterprise Development, a programme which was launched in 2001 under the joint auspices of the United Nations Environment Programme (UNEP), the United Nations Foundation (UNF) and other collaborating institutions, notably E+Co, UNEP Risoe Centre, and institutions in the five partner countries which are as follows:

- CEEEZ - Zambia
- Enda TM - Senegal
- Mali Folkecenter - Mali
- KITE - Ghana
- TaTEDO - Tanzania.[2] .

The AREED project, underway since mid-2000, is based on the mantra of "clean energy" services to rural under-served areas through the development and capacity enhancement of SMEs as the main vehicle for the provision of energy services. The main objectives of AREED are to:

- establish and strengthen enterprises (private sector, public-private partnerships) that offer clean energy services in mostly rural and peri-urban areas.
- increase the capacity of local NGOs and development organisations offering enterprise development services critical to small and mid-size energy enterprises during their start-up.
- engage local and regional financial institutions investing in the clean energy sector.
- enhance the ability of local, regional and national governments to provide support for business-like solutions to the delivery of sustainable energy services by small and mid-size enterprises (SMEs).

The AREED programme has had some good results in the course of the last five years. However, putting in place the relevant institutional framework that would reduce the many barriers that SMEs face as well as giving entrepreneurs sufficient leverage to either consolidate or tap into new business ventures remains a challenge. Thus, while enterprise development and capacity enhancement have been staple components of the programme, there is growing recognition that that improving the policy environment of entrepreneurs means fostering strong links with decision-makers and providing incentives that have the potential to boost the performance of SMEs, especially those in the energy sector.

- **Methodology and organisation of study**

The methodology of the study consisted of two stages of information gathering comprising desk and field research. The rationale for deskwork was mainly to scope the extent of the work needed and gain some insights into both general and specific constraints that SMEs have to contend with. These problems range

[2] A profile of the Partner Countries is attached in the Appendix

from infrastructural development, finance and access to financial mechanisms; knowledge and capacity related constraints; market and regulatory issues. Equally, understanding the general international context and the tendency towards trade liberalisation and globalisation is important to understand the climate in which both the private sector and SMEs evolve. This would set the tone for the type and range of interventions needed to create a conducive and enabling business environment and institutional framework. In addition, it was also necessary to understand how the structure, approach and philosophy of enterprise development based on the AREED model works and to understand whether the changes envisaged for future institutionalisation are actually compatible with the general philosophy of AREED. In other words, whilst the institutional changes are important to boost enterprise development and create an enabling environment for energy SMEs, they need to be facilitated and accompanied by a model that can work hand in hand with a range of stakeholders at all levels.

The second part of the study consisted mainly of country consultation i.e. spending a period of between five to seven days in each country. The work was done in close collaboration with country partners. The latter played both a facilitating and guidance role in terms of available in-country resources. Prior to this phase, questionnaires and an initial list of key stakeholders were sent to each partner institution based on the contextual experience of private sector development in the different countries in order to determine the available resources and the extent of the work that is envisaged.

The consultant worked closely with both AREED programmes officers and, in some cases, the managers of the programme to provide guidance and discuss strategy for gaining information that would be pertinent to the study. The country partner institutions drew up an interview schedule for in-country consultations with a wide range of stakeholders including government officials from different relevant ministries, officials from micro-finance institutions and banks, AREED entrepreneurs, donor agencies providing business development services and, in some cases, general practitioners in sustainable development. The bulk of the interviews were conducted with officials from different ministries as this was the main premise of the study i.e. to determine the range of available opportunities for the institutionalisation of AREED but also the nature of constraints that are affecting the creation, development and expansion of SMEs. In some cases, the consultant would rely on country partner institutions to provide advice on people outside the list of stakeholders that were able to give a general idea of the challenges that SMEs face.

Some of the constraints encountered were not dissimilar to the nature of a study of this nature. In some cases, the consultant could have gained from spending more time on interviewing key officials and to consolidating findings by speaking to another set of individuals as a way of verifying the information given. This is primarily because a number of government officials were keen to show that the institutional framework for SME development was already in place and that government was in the process of making structural changes to improve the business environment of SMEs. Whilst this was largely true, it was important to interact with a range of entrepreneurs to find out whether changes taken on at an institutional level were actually aiding SMEs on the ground i.e. at business level. In Ghana, the government is currently undertaking a study to determine whether policies formulated to assist SMEs are not producing the reverse outcome and actually impeding their development. Thus, the study tried, to a large extent, to verify this type of information by raising these questions to different resource people in order to properly substantiate prior findings.

In addition, the presence of the programme officer from the different partner institutions could, in some cases, produce both negative and positive results. The partner institutions have been instrumental in the conduct of the study. In many instances, the advantage of the insider helped to get access to the relevant people and obtain key empirical findings. However, in other cases, the presence of the programme officer meant that some respondents felt inhibited and did not want to part with information that might seem critical of the partner institution or be considered as sensitive. In Senegal, the consultations were carried

out by the consultant and were only facilitated by the programme officer. However, whilst a number of officials expressed reservations about the AREED approach this was not necessarily expressed as a criticism of the programme but rather in terms of strategies that partner institutions could adopt to boost current activities and make it widely known among key stakeholders.

The study also did not analyse the extent to which the types of investments directly or indirectly affected the policy directions of AREED countries. The study did not seek to deviate from the main direction of the terms of reference which was essentially a scoping exercise i.e. a baseline study to understand the policy context in AREED countries and understand both the constraints and opportunities available for the development and growth of energy SMEs. The study also tried to look at energy SMEs in particular but found it almost inescapable to steer away from scrutinising SMEs in general especially given the very generic nature of some of the problems.

The level of detail with regard to SME development is also largely dependent on empirical findings and the information provided during the country consultations. In areas where information on a specific area is scant, the consultant has sought to extract more information from other sources. However, the information and analysis are indicators of the country institutional arrangements in terms of SME development and the level of institutional support afforded to energy SMEs. The study draws largely from the empirical findings, occasionally using secondary sources to lend weight to some of the global issues referring specifically to renewables, SMEs or the private sector.

The main references used were national reports, poverty reduction strategy papers (PRSPs), studies on energy profiles of the different countries, power sector reforms in countries (where this is applicable), national development plans, specific reports on SMEs, SME policy documents, literature on support services provided to SMEs, and studies undertaken by different development agencies i.e. UNIDO, World Bank, USAID, on private sector development.

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Introduction

Economies across the globe are moving towards deregulation, liberalisation and globalisation. Globalisation and liberalisation, in particular, are increasingly shaping the structure and international relations of African economies. Firm competitiveness, a stable macro-economic policy environment, the development of strong enterprises and good physical infrastructure are vital for the production of quality products and the creation of a dynamic private sector. Some countries, notably in the North, have succeeded in establishing a strong industrial base using manufactured exports as the main driver. These are the ones that are currently benefiting most from globalisation. In the developing world, the key participants of this process are from East and South East Asia[3] – no African country with the exception of South Africa has experienced the development of an industrial base.

African economies have, however, made a slow start towards liberalising their economies. The bulk still rely heavily on imported goods. Most African countries continue to impose trade barriers against imports – 19 sub-Saharan countries showed an average unweighted level of tariff protection of 26.8 per cent compared to 6.1 per cent in OECD countries.[4] Meanwhile, the operation of market-led economies is not without its pitfalls and African economies are mostly not geared up for the fierce competitiveness that is often associated with allowing market forces free rein. The type of macro-economic stability necessary to develop an effective industrial policy and allow African economies to exploit their comparative advantages to encourage competition is not yet in place. The instability of exchange rates exposed to Forex market forces and high inflation rates are debilitating factors in overall economic performance. In spite of long years of structural adjustment policies (since the 1980s), integration into the world economy and the move to liberalisation has been rather slow.[5] The pace of liberalisation has, to a large extent, depended on both the degree and type of liberalisation and the level of implementation of programmes imposed by the World Bank and International Monetary Fund.[6]

Globalisation has impacted on SMEs differentially. To some it has offered opportunities for expansion and growth while to others it has exposed their weakness by placing them on a par with large enterprises that already substantially established themselves in existing markets and are better resourced. With fierce competition, weak SMEs are forced to close down their businesses while stronger ones thrive. Yet, entrepreneurship is an important trajectory for economic growth. The weakness of the SME sector has been linked to weak competitiveness of the economy and resultant low export rates.[7] While it may be true that SMEs do not all contribute significantly to economic growth, emphasis should be placed on those that are able to help the development of the industrial sector, contribute to job creation and, through their own success, cultivate the culture of an entrepreneurial class. A number of SMEs are not able to sustain their activities due to market volatility and the instability of the macroeconomic environment. This means that policy makers must ensure that SMEs are not put in a position where they cannot benefit from market

[3] Thoburn, J. "Finding the right track for industry in Africa – some policy issues and options" UNIDO Discussion Paper , Industrial Policies and Research Branch – Investment Promotion and Institutional Capacity-Building Division, Vienna, 2000, p 4

[4] Ibid, p 2.

[5] Mosley, P. and Weeks, J "Has recovery begun? Africa's 'adjustment' in the 1980s revisited, in World Development, Volume 21, No 10, October 1993, , p 1585

[6] Kirkpatrick, C and Weiss J. "Trade policy reforms and performance in Africa in the 1980s" Journal of Modern African Studies, Volume 33, no 2, 1995, pp 285-298

[7] Report by the Ministry of Finance entitled Enhancing competitiveness for SMEs in Egypt – General framework and Action Plan, November 2004 p 16

incentives or are affected by market failures and distortions. Equally, the playing field is rarely level as foreign investors are given incentives to boost foreign direct investment and local entrepreneurs are faced with barriers such as acquiring necessary permits and licences and paying numerous taxes. The nature of the business environment is stifling to the extent that SMEs tend to have little incentive to become formal and prefer to remain within the informal sector which in itself limits their potential for expansion and development. Thus maintaining a stable macroeconomic environment is a necessary prerequisite for the development and support of SMEs.

Knowledge and skills of a technological and business nature, are crucial in any economy. However, in many countries in Africa, these valued inputs are lacking and this is particularly apparent in the energy sector where awareness, both among SMEs and potential consumers, of alternative sources of energy is a key determinant in terms of uptake and market creation. This gap in awareness can be classed as one or the single biggest factors affecting the development of energy SMEs and their ability to contribute to economic growth. Meanwhile, research institutes in Africa do not carry as much weight as they do in developed countries and expenditure on research and development shows that it is weak priority area for most African governments.[8]

In most developing countries, there is a serious skills shortage. Economists, scientists and engineers are often attracted to foreign locations that offer a higher income, job security and enhanced lifestyle. This, coupled with low technology, localised and weak markets, poor access to capital, absence of infrastructure and weak policies have constrained the ability of SMEs to contribute to national development and to compete either locally or internationally. In many countries in Africa, Business Development Services (BDS) have been too heavily focussed on business start-ups, with training and marketing services and too little emphasis on what growth trajectory would help SMEs to flourish and expand.

In the energy sector and its potential linkages to SME growth, RETs can potentially contribute to the economic development of a nation, job creation and environmental protection, especially within the context of fossil fuel dependent economies. However, the development and uptake of renewables, particularly in Africa, is largely conceived of within the confines of a project. This project-based approach has several limitations as it reduces the scope for sustainability. Consequently, a new set of thinking is gradually emerging which treats RETs as an integral component of a market-based energy economy. An essential premise here is that for RETs to contribute to job creation and poverty reduction, their dissemination and uptake needs to be driven by the private sector.

SMEs constitute a vital element of this sector. The common denominator for the development of SMEs and the uptake of renewables is undoubtedly the adoption of favourable policies that can stimulate development initiatives, create a solid market foundation and inspire confidence in a range of actors, not least financial institutions.

The current environment of soaring prices and increasing demand for petroleum based products underscores the need for alternative types of fuel in order to reduce fossil fuel dependency in the interests of environmental and economic efficaciousness as well as to promote human development through increased utilisation of 'clean' energy technologies. Equally, the development of SMEs has gained some momentum within the context of trade liberalisation and privatisation of key services. Notwithstanding, in Africa, in spite of the potential of renewable energy sources, high up-front costs have reduced its

[8] For instance, Egypt spends only 0.2% of its GDP on R&D and Tunisia 0.6% - see above document for more information – p 28.

application and consumption.[9] The lack of reliable and credible information on renewables, high technological and transaction costs and the lack of an enabling regulatory environment are all constraints that SMEs have to contend with. RETs, like the SME sector, suffer from a number of misconceptions based on either past experiences and the aforementioned knowledge deficit. Yet, the SME sector is ripe with potential opportunities in the agro-industry, energy, tourism and other business sectors. However, both renewables and the SME sector need to be supported through the adoption of policies that can unleash this potential.

SMEs and renewable energy technologies, either individually or working in tandem, have the ability to contribute to wealth and job creation and poverty reduction. Meanwhile, the provision and dissemination of vital infrastructure such as energy, as in the case of social welfare has, to date, been conceived of in the context of the state. This study adopts the premise that a more holistic approach is needed that articulates the participation of a broader range of actors, including the private sector.[10]

[9] Sawin, J, Flavin, C. "National Instruments: Policy Instruments for the Advancement and Diffusion of Renewable Energy Technologies around the World". Thematic Background Paper, January 2004.

[10] Yahie, A.M Poverty reduction in sub-Saharan Africa – is there a role for the private sector?, Economic Research Papers, No 52, Cote d'Ivoire, Abidjan, African Development Bank, 2000, p 4

2. Overview of policy formulation in the energy sector within the context of Africa

The production of energy policies has, hitherto, been mainly associated with the state. However, policy formulation, at its best, is a reflection of inputs and contributions from several actors and stakeholders, not least the community that policy is designed to serve. Nonetheless, it is important to understand these power dynamics and limitations in order to fully comprehend the context in which policies are fashioned and decisions adopted. Policy making, legislation and enactment symbolise the power of the state and constitute its levers and locus of power. Access to energy and ownership of energy technologies and infrastructures, to a large extent, epitomise power within the apparatus of the state. Consumption of energy is generally perceived as an indicator of power and wealth. The use and consumption of energy has considerable connotations for power relations and differentials. These differentials can be observed both from a macro- and micro- level. Through the formulation of energy policies, the state can define its power base and how it intends to consolidate its stronghold on the electorate. For example, rural electrification programmes in Africa have, to a large extent, been used as an electoral promise to sway rural votes in favour of the government in power. In addition, state policies on such as issues as the allocation of subsidies and consolidation of substitution policies are instruments of state power to execute its political, economic and social objectives and thus appease and satisfy different segments of the electorate. Equally, the state has also profited financially from the huge income derived from the sale and distribution of energy products and their consumption.

However, in reality, the state is in unenviable position where it is not able to formulate and effectively implement its own national policies. This has led to a general moral bankruptcy of the state where power failures are now regular occurrences in major African capitals and these tend to be translated as state sector inefficiency. Furthermore, adjustment programmes devised by international financial institutions as macro-economic measures (including market liberalisation, releasing national currencies onto international forex markets, cutting down state bureaucracy – privatising state utilities and parastatals and reducing expenditure on social welfare) considered necessary to restart debt-ridden African economies that ground to a halt as a result of balance of payment crisis. Other structural weaknesses have, to some extent, reduced the ability of many states in Africa to define and implement energy policies. In this way, the state becomes dependent, disempowered, and, in extreme cases, dysfunctional. Thus, the residual "weakness" of the state is implicated in energy policies. Concomitantly, increases in global oil prices have put further pressure on all developing world economies. Yet electricity production and management is considered vitally important to the state and, as such, is kept within its purview so that energy does not become the sole monopoly of private institutions.[11]

In addition to dependency issues, the state tends to act in response to international agendas and development paradigms. Thus, the main onus for the contemporary state is to introduce reforms that would help spur liberalism and unleash the supply of energy resources in an efficient manner. Yet the state is largely unable to use its power to deliver such services given the extent of its energy poverty as this limits its ability to guide and orient development. Consequently, the formulation of policies on energy SMEs and a wide range of other development issues remain within the levers of power of the state but concrete implementation becomes burdensome.

As Rapley asks:

[11] R.S. Maya "The Structure of the Power Sector, Power Sector Reforms and Implications for the Expanded Access to Electricity in Southern Africa" in N. Wamukonya (Ed.) Proceedings of the African High-level Regional Meeting on Energy and Sustainable Development For the Ninth Session of the Commission on Sustainable Development, UNEP Risoe Publication, Denmark, 2001, p 136

> *"But it seems obvious that if a state cannot insulate itself against such pressures, and worse, cannot successfully implement its policies; it lacks the strength to engineer development. What, then, must governments do to obtain the strength their states need to engineer development?*[12]

Paradoxically, in spite of this apparent backdrop of state "paralysis", the state still has the potential to take policy action necessary to spur development and encourage the consumption of clean energy services through the development of an enabling environment that would allow SMEs to grow, flourish and contribute to local and national development. Consequently, the growing appreciation of the role that SMEs can play in reinvigorating the economy and providing employment is one that a number of African countries and governments are beginning to factor into their policy planning and priorities.

4. Opportunities for SME Development

The informal sector is an integral part of the economies of most Sub-Saharan African countries, and is believed to account for 80 %[13] of the economy in Mali, 90% in Senegal[14] and similar figures in Ghana[15]. In addition, the contribution of SMEs to local and national economies is often difficult to define. The definition of SMEs remains to a large extent context specific. In Tanzania, for instance, the policy document on SMEs makes a distinction between micro enterprises and SMEs. Micro enterprises are small businesses that employ up to four people mainly family with capital amounting up till 5 million Tanzanian shillings (TShs.). SMEs on the other hand, are mainly formalised entities with employers ranging from 4 to 49 and a capital investment ranging from 5 to 200 million Tshs.[16] Thus the definition of SMEs is largely dependent on the context of the country, regulations and regulatory framework, the number of jobs created and their inclusion or non-inclusion in the formal economy.

There is widespread consensus among most of the respondents that the current business climate in the five AREED countries and in most developing countries constitutes a "new dawn" for SMEs. The general perception is that SMEs have moved from being at the periphery of local economies to taking a more central role. As the public sector becomes more bloated, SMEs have a bigger role to play in developing private initiatives, developing the local technological and industrial base, and promoting the participation of youths and women in the economy. Consequently, SMEs are increasingly perceived as active agents in the promotion of equitable and sustainable development. In Zambia for example, government took a number of initiatives to boost the private sector because it was not seeing the level of growth and investment that was needed to accelerate growth[17]. The private sector development action plan was based on studies to improve the investment climate and make the business environment more conducive to SME development. Macroeconomic instability and the fact that policies were frequently changing did not inspire confidence in the entrepreneur. For instance in Zambia, it is these problems that the government is hoping to reduce through the private sector development action. In this light, the government has conducted an extensive assessment which would assess all licenses required for operating a business and

[12] J. Rapley, Understanding Development: Theory and Practice in the Third World, London, Lynne Rienner, 1996, p 138

[13] Personal Interview, Mr. Amadou Niogado, Chambre de Commerce, 14th of October 2005, Bamako, Mali

[14] Personal Interview, Mr Mamadou Diouf, Ministry of Small and Medium Enterprise, 5th of October, 2005, Dakar, Senegal

[15] Personal Interview, Mr Dawarnaba Baeka – National Board for Small Scale Industries ,NBSSI, 8th November 2005, Accra, Ghana

[16] United Republic of Tanzania, Ministry of Industry and Trade - Small and Medium Development Policy, 2002

[17] Personal Interview, Natasha Machilla, Ministry of Commerce and Trade, 24th March 2006

seek to reduce the administrative barriers by having a one stop shop. Efforts are made also to make Business Development Services (BDS) more varied as the emphasis tends to be on training and start-ups.

The environment for SME development is improving and the governments of the countries under study seem to be taking deliberate steps to render the business environment of SMEs more friendly and favourable to growth. Given the immediacy of poverty reduction strategies as a pre-condition for donor assistance, a number of pro-poor policies are designed with a strong emphasis on private sector initiative. Increasingly, poverty reduction policies are seen as a proxy for the promotion of private development.

- **Financial institutions and greater openness**

Banks who hitherto perceived SMEs as risk-prone are now deliberately "courting" SMEs.[18] Consequently, bank engagement is gradually growing. In Ghana, Senegal, Tanzania and Mali, specialised departments have been created to cater for SMEs and capitalise on the huge profits that can be made through high interest rates that are associated with lending money to SMEs. For instance in Senegal, whilst interest rates for larger companies are pegged at between 5 and 6%, for SMEs interest rates can be as high as 11.3%[19]. Consequently, as Gueye rightly opines: "for the bank, given such stark comparisons, the choice is obvious".[20] SMEs and banks can enjoy mutually beneficial partnership since banks are motivated by profits and SMEs to some extent are equally dependent on profits for their sustainability. The fact that most banks are creating special departments for SMEs shows that perceptions are changing but also that SMEs are considered a potentially lucrative business.

The growing number of micro-finance institutions is also an indication of the different financial needs and arrangements of SMEs. A number of these institutions such as the Foundation for International Community Assistance (FINCA) in Tanzania are catering for small lenders whose absorption rate and spending ability is smaller. As stated by Baro: "microfinance institutions are the answer to the poor man's prayer"[21] Although there is a growing realisation that there is money to be tapped from SMEs from the point of view of many banking institutions, the profile of many entrepreneurs and their transactions are difficult to monitor thus creating a natural niche for micro-finance institutions. In addition, micro-finance institutions are generally perceived to have better debt recovery success rates[22]. In Mali, the government is keen to note that micro finance institutions are playing a key role in the economic growth of the country and an economic development fund has been established to give an added boost to micro-finance lending[23].

- **Renewed institutional awareness**

It is evident that there is greater awareness among institutions in the AREED countries to create a more conducive environment for the development of SMEs. This institutional awareness has been translated into the formulation of policies that are specifically geared towards SMEs and separate ministries that provide business development services and reduce the bureaucratic red tape that was hitherto associated with SME creation, development and expansion. In Senegal, cognisant of the fact that most businesses are classified as SMEs, the government created a separate SME Ministry and, concomitantly, an SME charter. The Charter has been endorsed by a number of key stakeholders and played an instrumental role in reaching a common consensus on issues relating to the definition of SMEs, their roles, contribution and

[18] Personal Interview – Mr Gueye – Ecobank , Dakar, Senegal, 4th of October, 2005
[19] Personal Interview, Mr Gueye – Ecobank, Dakar, Senegal, 4th of October 2005
[20] Personal Interview – Mr Gueye, Ecobank, Dakar, Senegal, 4th of October, 2005
[21] Personal Interview – Mr Baro, Consultant, Dakar, Senegal, 5th of October, 2005
[22] Personal Interview, Mr Correa, Banque Ismaique de Developpement, 4th October 2005, Dakar, Senegal
[23] Personal Interview, Mr Mohamed Simpara, Ministere des PME/PMI, 13th October 2005, Bamako, Mali

commitments. The document also gives some guidelines on how both state and SMEs can respect issues relating to transparency and how both the state and SMEs can respect their mutual commitments[24]. In Zambia, the current draft on energy policy makes mention of the need to encourage SMEs and also the importance of facilitating access to loans and for government to act as a guarantor[25].

These are clear signals that governments are looking at the private sector and SMEs with renewed hope and intend to reduce the current hurdles that impede their development.[26] The nature of macro-economic policies and trade liberalisation has taken a different trajectory from one where the state is the key actor to one where the government is one actor among several others. Hence, in the energy sector it is also important for government to align itself with this new trade and economic orientation by adopting a more *laissez-faire* attitude and opening up the market for other players, particularly the private sector to play a role in the delivery of energy services and products such as petroleum products[27].

In today's Zambian configuration, the delivery of energy services is monopolised by the Zambian Electricity Supply Corporation Limited (ZESCO), the state owned-utility which has a reputation for high-pricing and poorly maintained infrastructure. Power cuts are an accepted part of life, particularly in rural towns and the poorer suburbs of Lusaka, where ZESCO derives least income. Thus, the desired outcome would be to open up the distribution system and do away with the current monopoly. Meanwhile, the current Zambian government would be hard-hit by such a move as it derives substantial income from ZESCO and would be hard hit by a reduction in remittances.

In Senegal, the government is putting in place a number of measures in order to move from SME charter to law. This would go a long way in terms of implementation of many of the recommendations in the charter but equally in the development of SMEs. Within the government's strategic document on accelerated growth, efforts are being made to link the crucial sectors (agriculture, agro-industry, fisheries, teleservices, tourism and artisan work) with SMEs. Institutional structures are also created to help implement and operationalise a number of issues relating to SMEs and the SME ministerial department looks at policy areas in terms of specific problems and potential solutions.

Still in the context of Senegal, the Ministry also tries to wake the entrepreneurial spirit in potential businessmen and focuses on the development of potential business opportunities in the region in order to strengthen local entrepreneurship. There are other initiatives such as the 'SME caravan'. The rationale behind this idea is to meet SMEs or potential entrepreneurs in order to discuss financial options; to offer advice on how to regulate their business and discuss potential business opportunities that could be exploited in the local region. The SME caravan idea is mainly conducted as part of a communications exercise and helps to identify potential SME entrepreneurs, organise finance and potentially assist SMEs expansion and growth.

Since 1990, a supervisory agency has been created for SMEs and a promotional agency which should help the efficiency of each sector and encourage cross-sectoral synergies. The agency is the technical arm of the Ministry and defines its programme and ways of monitoring the actions that are envisaged. The

[24] Personal Interview, Mr Mamadou Diouf, Ministry of SME, 4th October 2005 Dakar Senegal

[25] Personal Interview, Department of Energy, Lusaka, Zambia, Mr Michael Mulasikwanda and Mr Lawrence Musalila, Lusaka, Zambia, 24th of March 2006

[26] Personal Interview, Department of Energy, Lusaka, Zambia, Mr Michael Mulasikwanda and Mr Lawrence Musalila, Lusaka, Zambia, 24th of March 2006

[27] Personal Interview, Department of Energy, Lusaka, Zambia, Mr Michael Mulasikwanda and Mr Lawrence Musalila, Lusaka, Zambia, 24th of March 2006

creation of Agence de Développement des Petites et Moyennes Entreprises (ADPME) is an important landmark for the promotion of SMEs in Senegal. The main objective of the agency is to provide support to SMEs and alleviate constraints faced in accessing credit, removing fiscal barriers and streamlining licensing procedures as well as reducing bureaucratic red tape. The agency provides economic, commercial and regulatory information to SMEs and evaluates both opportunities and constraints in different sectors. ADPME is gradually taking on the role of an observatory that is able to monitor the progress of a good number of enterprises in order to properly understand the profile and visibility of SMEs. Through ADPME, a number of licensing changes have been made to help entrepreneurs set up their businesses without the usual delay. Mme Ndiaye, the Director of ADPME, acknowledges: "we are not quite yet at the level of Tunisia where you can create a company and have all the relevant papers virtually on the same day but we have come a long way"[28].

ADPME is able to monitor progress of companies at the various stages of enterprise development and has created different counters to assist enterprise at crucial stages i.e. vision, creation and expansion and other specific needs, especially for those enterprises that are in difficulty. It provides training and finances and has recently launched a scheme where it introduces a bonus of 20% to encourage heads of companies to renew their capital equipment, and particular incentives to get their business computerised. It offers training services in commercial negotiations, especially when trade rules such as those of the World Trade Organisation (WTO) are not favourable to Senegalese entrepreneurs.

Similarly, the Agence Nationale chargée de la Promotion de l'Investissement et des Grands Travaux (A.P.I.X.) is an autonomous entity which was created to help improve the business enterprise of large companies and to foster a climate which would be conducive to the promotion of private investment. The agency is strategically tied to the President's Office and thus enjoys tremendous clout. APIX is designed to bridge the divide gap between the promotion of big enterprises and investment and thus reduce the current infrastructural gap. As such, APIX plays a watchdog role and ensures that deadlines are respected in relation to investments made. APIX's role is not specifically geared towards SME development. However, by improving business conditions for foreign and local investors it is indirectly contributing to the development of private initiatives and entrepreneurship.

Whilst countries such as Ghana do not have an SME policy per se, the Ministry for Private Sector Development, Ministry for Trade and the National Board for Small Scale Industries (NBSSI) are conducting specific activities that are centred on improving institutions and assisting private sector development to ensure that the environment is sufficiently enabling. The NBSSI was created in 1985 to assist the development of small-scale industries in Ghana through the implementation of policies and programmes. However, the scope and role of the NBSSI has been limited due to the lack of a clear, nationally established policy document on SMEs that would also provide definitional clarity. The Ministry for Private Sector Development has directly identified a number of outputs that would directly or indirectly trickle down to SMEs. These are mainly:

- to improve Ghana's position in terms of regional and international markets through a trade sector support programme (TSSP)- as well as making the national markets more accessible,
- to facilitate the establishment of a customer charter system to reduce the number of days it takes to establish an enterprise,

[28] Personal Interview, Mme Ndiaye, ADPME, 3rd October 2005, Dakar, Senegal

- to improve competency and capacity at the firm level by putting in place an informal sector action plan and identify ways in which the informal sector could migrate to the formal sector by putting in place models of sustainable development services, and,
- provide policy and regulatory impact assistance, tools as well as cost benefit analysis.

Supplementary to such institutional support there have been an increase in the number of business service providers. In 1993, 53 of these support services were recorded and the number has increased. [29]

In Mali, a number of institutional changes are made to help market the country abroad and attract foreign direct investment (FDI). Similarly, like most other African countries critical sectors have been identified as crucial to local economic growth that would require preferential treatment. The government has also taken a number of steps to provide local entrepreneurs with the relevant infrastructures such as the establishment of an industrial zone. Efforts have been taken to ensure that this area is well served with regard to transport, utilities and telecommunication services.[30] The Private Sector and SME Ministry has twinned forces with UN agencies such as United Nations Industrial Development Organisation (UNIDO) in order to provide technical assistance to SMEs and set up a programme which is integral to and managed by the Ministry of Industry that would oversee technical assistance and capacity development support provided for entrepreneurs.

The government of Zambia has taken some steps in order to address barriers that are affecting SME development but progress has been rather mitigated as a result of

- Lack of strong leadership and poor means of monitoring progress and holding various actors accountable for implementation.
- Paucity of resources for implementation.
- Restrictive perception of reform. Reforms should be looked at holistically to initiate relevant institutional changes and ensure that reforms are consistent with public sector reform as a whole.
- Bureaucratic indifference, extending to corruption[31].

- **Creation of youth funds as part of entrepreneurial development**

With growing unemployment in many of the AREED countries, developing an entrepreneurial culture is perceived as a necessary option to assist the youth who are widely perceived as the forgotten element in many African societies. The flight to European and Western capitals as the solution for disenchanted youth is seen as unsustainable in many government circles and more efforts are being taken to stem the influx of young emigrating youths. As Mr Diop states:

> *We receive over 100 000 job requests essentially from youths who have no other aspirations but to emigrate. This has led to the creation of a fund for youths especially since a lot of them do not have access to classical banks and do not qualify for loans.*[32]

[29] Personal Interview Jacob Ainoo- Ansah - UNIDO , Accra Ghana, 10th November 2005
[30] Personal Interview,– Mr Mohamed Simpara , Minsitry of Private Sector Development, 13th October 2005
[31] Republic of Zambia, Administrative barriers to Investment, Foreign Investment Advisory Service, A joint service of the International Finance Corporation and The World Bank, March 2004, p xvii

[32] Personal Interview – Mr Sidiky Diop, Dakar, Senegal, 18th October 2005

These funds are created with a view to encouraging the youth to develop their own businesses and to contribute to the local economy. Both Senegal and Mali have a mixed profile of youths ranging from those with university degrees to those with basic skills. A number of youths want to set up businesses in pharmacy, open their own veterinary practice, set up bakeries, artisan work and food processing activities. These funds are set up by the state as part of its moral obligation to assist the youth who have demonstrated a real desire to embark on entrepreneurial activities. In addition, the state curricula are designed in such a way that that there is little effort to teach students to become entrepreneurs and most young people go through the system envisioning salaried positions within a public sector that is increasingly making people redundant as part of its efforts to reduce public expenditure and streamline "fat" bureaucracies as part of the conditionalities set out by the IFIs for continued economic assistance. Through employment ministries in both Mali and Senegal, government is cognisant of the fact that the promotion of jobs, especially where youths are concerned, would necessarily have to involve the creation of SMEs.[33]

The Fonds Auto Renouvelable pour l'Emploi (FARE) in Mali has been in existence since 2001 and its main objective is to provide technical and financial assistance to young people that want to start their own businesses. The FARE is able to provide loan guarantees of up to 30 million CFA for the creation and development of enterprises and, to a certain extent, is perceived as a purveyor of jobs in a country where youth unemployment has risen to worrying proportions. Through its numerous interventions the FARE has been able to create more than 5,549 temporary and permanent jobs.

Similarly, the Fonds National de Promotion de la Jeunesse (FNPJ) in Senegal has, over the years, embarked on a wide range of training in order to teach the youth how to manage their companies. Both the FARE and FNPJ underscore the importance that is afforded to enterprise development through a combination of institutional support and schemes either for the promotion of youth or women but more specifically geared towards SME promotion and entrepreneurial development.

Opportunities in the Energy Sector

With regard to the energy sector, a number of observations can be drawn. The creation of energy agencies in many of the countries under study thus underscores a new "dawn" for SMEs. A number of these agencies have taken a different approach to energy service delivery and the once heavily focussed slant on rural electrification has been swapped for a more holistic approach that takes into account the impacts on energy services of a particular sector. In the international sphere, there is growing consciousness that poverty reduction and energy service delivery are two faces of the same coin.[34] Consequently, attention is increasingly centered on enterprise development of energy SMEs as integral to pro-poor policies but also necessary to stimulate national growth. Strategic documents such as the PRSPs try to ensure that the energy sector is reflected in the national development plan and the overall sustainable development objectives of countries. The current environment is highly propitious for donor support in the energy sector and SME development and private sector initiatives are perceived as issues that need to be given greater currency. As underlined earlier, the emphasis is on social justice, empowerment of disenfranchised

[33] Personal Interview - Mr Modibo Kadjoke, Bamako, Mali 13th October 2005

[34] Events on the international fora such as the Bonn Conference on Renewables in 2004, the World Summit on Sustainable Development in 2002, and the forthcoming Commission for Sustainable Development CSD 14 in May 2006 as well as other energy initiatives such as Global Village Energy Partnership and the Global Network on Energy for Sustainable Development have all contributed to creating a platform for renewed vigour and action in the delivery of energy services and emphasised the need to support SME development .

and marginal groups (youth, women) while enterprise development in the energy sector remains a concrete demonstration tool. Thus donor support is matched by a general political will right across the continent.

In addition, given the business philosophy and trade ethos of the countries in this study which is premised on the commercialisation of imported goods, the mere provision of electricity is not a panacea for energy poverty. Enterprise development is increasingly seen as strongly linked to energy service delivery. As Niang reflects:

> *In Senegal and in many African countries our situation is quite dramatic since most of what we consume is imported. Our industrial culture is very weak…We realised that instead of the simple provision of rural electricity with little impact on other productive sectors there was a need to link energy service delivery to critical sectors..*[35]

- **New energy agencies as outlets for enterprise development**

The Agence Senegalaise d'Electrification Rurale (ASER) has identified a new initiative dubbed ERIL (Electrification Rurale à Initiative Locale). This initiative provides some scope for SMEs to get started. As Ndiaye states: "there is still some possibility that big companies would compete for big concessions but in some areas local communities can take on the role of entrepreneurs." [36]

Given the onerous connection charges prevalent in rural areas, the state needs to provide some subsidies to make costs affordable. As entrepreneurs tend to have a number of structural constraints to contend with, the state would need to bear the cost of the non-energy items otherwise borne by the rural consumer. It is envisaged that the ERIL initiative would put in place a framework that would create opportunities for entrepreneurs. It could also help enthuse entrepreneurs in the energy sector and catalyse provision of services such as rural electrification with the help of ASER and the state. If successful, it could create jobs and develop community reflexes, especially with regard to energy needs.

Energy agencies created to address access and equity issues relating to rural electrification and household energy such as AMADER (Agence Malienne pour le Développement de l'Energie Domestique et de l'Electrification Rurale) are also important outlets in the development and promotion of SMEs particularly energy SMEs. AMADER has invited entrepreneurs to come up with bankable business plans. If the conditions are met, they would be given a certain locality where they can invest and provide energy services provided they are able to make a down payment of 20% of the total funds required to set up the business.[37] Similar to the ERIL initiative it is obvious that such initiatives would benefit entrepreneurs who already enjoy some degree of business acumen and clout. Consequently, the small players would find it difficult to break into such strong business networks and partnership initiatives.

In Tanzania, it is hoped that the novel Rural Energy Agency (REA) and Rural Energy Fund (REF) will gradually remove current barriers related to energy access and thus change the rural dynamics to the extent that poorer communities are able to improve their livelihood activities through better and reliable energy services. In fact the REA is largely perceived as an opportunity to promote new investments with regard to modern forms of energy in a rural context where the majority of people remain energy poor. The REA would also seek to facilitate new energy project developments and would to a large extent seek

[35] Personal Interview with Mr Niang, ASER, Dakar, Senegal, 7th October 2005
[36] Personal Interview, Mr Mamadou Ndiaye, Department of Energy, 5th October 2006, Dakar Senegal
[37] Interview Mr. Agalassou - AMADER, Bamako, Mali 11 October 2005

private sector involvement as a number of these projects would be owned and maintained by the private sector. Other stakeholders such as NGOs and CBOs will also be invited to join in. Both the REA and the REF would provide the missing link by bridging both the financial and technical gap. However, the success of the REA and REF would largely depend on the extent to which the energy needs of the poor are factored into new project development as well as a review of existing energy policies within a rural context. The objective of delivering energy to rural communities through enterprise development ventures is quite commendable but much will depend on measures taken to raise awareness of numerous opportunities in the energy sector and capacity development. Currently there is some hope in the energy sector. This is primarily because the energy sector is going through considerable restructuring and the private sector will ultimately be given a bigger role especially with regard to operational and managerial issues related to energy service delivery. Development agencies such as Sida (Swedish International Development Agency) have played a key role in providing financial support to the sector as well as capacity development since the early sixties with the development of the power sector. These new development in the sector will enhance existing collaboration with donor communities and give the Tanzanian government a fresh mandate that would facilitate the delivery of energy services to poor and under-served communities.

Tax Incentives

The Malian state has exercised its national interest and decided not to apply the WAEMU regulation on regional harmonisation of fiscal taxes. Also, the new investment code which is being revised has conceded tax breaks to exonerate building and construction materials and equipments. All material related to renewables are exempted from tax. However, the institutional framework to assist entrepreneurs with the uptake of renewables is present but the implementation of such fiscal advantages is not always easy. In Ghana, Mali and Tanzania various types of tax breaks on renewables and energy efficiency products have been introduced but there is still some work needed to help entrepreneurs understand these fiscal advantages so they can invest in the sector.

The equipments that tend to get preferential treatment in terms of tax exemption are usually above the means of small entrepreneurs and though there is no direct discrimination it is clear that big businesses will be the big takers. Equally, there is a need to reassure the business community that renewables can constitute a viable business. There are a number of policies that remain to be formulated to help the uptake of renewables. In the interim it is clear that some governments are committed to leading by example. In Ghana, the government has changed the entire lighting of all the Ministries and institutions to energy efficient bulbs. By waiving taxes on incandescent lights, government has made these affordable and has embarked on using these lamps as part of its promotional strategy to emphasise its merits to the average consumer.

In Zambia, the Energy Regulatory Act which set up the Energy Regulatory Board requires license fees. However, a concession has been made for entrepreneurs dealing in solar systems.[38] Taxes on solar panels have been waived. With some energy resources such as LPG, tax rates have been substantially reduced in Zambia and excise duties have been further reduced from 30 to 10%.[39] Also, with regard to the new grid code, certain facilities are declared as common carriers. This means that a small entrepreneur can apply to distribute power and is not squeezed out by ZESCO.[40]

Main barriers hindering the integration of SMEs

[38] Personal Interview, James Manda , Energy Regulatory Board Lusaka , Zambia, 24th March 2006
[39] Personal Interview, Oscar Kalumiana, Department of Energy, Lusaka, Zambia, 24th march 2006
[40] Personal Interview, James Manda, Energy Regulatory Board, Lusaka, Zambia, 24th march 2006

SMEs are generally perceived as the "missing middle" between large and small firms of the "emerging" dynamic private sector in enterprise development. However, the ability of SMEs to contribute to development is heavily linked to the business environment in which they operate. Political instability, poor financial mechanisms, weak entrepreneurial culture, burdensome legislation and regulatory frameworks have all contributed to limiting the extent to which SMEs can act as agents of change. The smallness of the market, poor infrastructure, unattractive tax regimes and weak institutional capacity are some of the main problems that SMEs have to contend with.

- **Weak private sector**

The private sector is increasingly perceived by many governments in Africa as a catalyst for economic growth, job and wealth creation. Ironically, governments tend to make numerous efforts to improve the business environment to attract FDI. Often, local industries are not given the same preferential treatment. Governments can make a difference in boosting trade liberalisation to the extent that local industries can corner part of the market. However, in many countries it is still far easier to bring in imported goods than to produce locally. The business environment is still relatively unfriendly.
As one official states:

> *We need to move beyond policy to implementation of a trading system that supports and protects the private sector otherwise the industry will not flourish.*[41].

In addition, the private sector is not well organised and unable to use its power as leverage and as a negotiating force. Whilst big players are well organised, smaller companies are on the margins mainly because their activities are not well co-ordinated.

The promotion of growth and alleviation of poverty are linked to the strength or weakness of the private sector. Indeed both globalisation and the dysfunctional nature of a number of public sectors across the continent had created renewed hopes for a private sector which is expected to fulfil many of the ambitions that the state had carved out for itself. In spite of the potential of the private sector in AREED countries, there is little doubt that it is still struggling to wean itself off years of government monopoly and state interventionist measures. SMEs are but a reflection of the private sector and form a key part of private sector led growth. The mushrooming effect of agro-based industries in many African countries, including those in the AREED countries, is sufficient evidence of the growing importance of SMEs' ability to improve and enhance productivity as well as to create much needed jobs. However, in many AREED countries, the full extent of the employment potential of SMEs still remains a development and aspirational goal. Both Mali and Senegal have witnessed expansion of private sector development. However, expansion has not quite matched stated goals in terms of wide scale provision of jobs.

In addition, globalisation is often perceived as a bigger culprit. As one official states:

> *A number of cheap products are finding their way in Tanzania and the government is facing a dilemma in terms of what to do- either apply protectionist measures or leave the market forces to deal with the issues. We are seeing goods from China and India come here and sold at unimaginable prices. The environment is not very conducive for SMEs. If the local market to help develop SMEs is not there how are we going to help them export their product?*[42]

[41] Personal Interview, Mike Laisier, Dar es Salam, Tanzania, 22nd November 2005
[42] Personal Interview, Mike Laisier, Dar es Salam, Tanzania, 22nd November 2005

- **Incapacitated institutions**

Moreover, the institutions that are agents and drivers of change are often faced with structural problems ranging from meagre resources, poor co-ordination and capacity. A number of institutions that are assisting SMEs, NBSSI in Ghana, Small Enterprise Development Board (SEDB) in Zambia etc. are poorly funded. Thus, while the policy environment and institutional setting seem to be firmly in place – at least on paper - there are still considerable difficulties in translating such policies into action. A number of Ministries in the AREED countries can boast of an SME policy. However, these policies lack an implementation strategy and are often reduced to broad political statements and slogans. Governments in Africa are constantly undergoing changes and cabinet reshuffles are now firmly engrained within the political consciousness of the majority of the electorate. The frequent shuffling of government ministers has created the "peaks and troughs" scenario thus causing lack of continuity and power vacuums. As one official affirmed:

> *Finance is not the main constraint that SME are faced with. I believe the single biggest constraint is lack of leadership as policies need to be spearheaded by champions.*[43]

In all of the AREED countries, it would seem that there is the political will to boost development by levelling the playing field for SMEs so that they can function in a business conducive environment and thus participate in job and wealth creation. However, more needs to be done. The institutions that are catering for SMEs need to be adequately trained so that they can meet their needs more appropriately. Quite often the institutions are created and the concomitant needs are not sufficiently factored into their creation. As noted by one observer "what kind of capacity building can an entrepreneur expect when the trainer or service provider is more in need of the service on offer".[44]

- **Poor access to finance**

Finance is a key constraint affecting the development of SMEs in Africa. Although the business environment is gradually improving and bank confidence in SMEs is changing, the dominant perceptions are still well entrenched. SMEs are perceived as risk prone and the degree of analytical poverty on SMEs is such that there is little information to show performance levels of SMEs, in particular, their loan repayments performance. Some countries have shown an improvement in lending rates. For instance, in Ghana, lending rates have declined from 44% to between 22% and 25%. This means that there is some degree of confidence within financial spheres but considerable efforts still need to be made to change current dynamics. Thus, the phrase "no collateral, no deal" remains the operative slogan for most banks with regard to SMEs. In Senegal, the government has improved conditions for private sector growth but progress is mitigated as a result of an inadequate financial system.[45] Credit officials in Ghana note that they lend money to large firms mainly for four reasons. First, the cost of screening and monitoring was smaller in comparison to SMEs, second, these firms were better able to provide information on current operations and future plans, third, they were able to provide better collateral and fourth, the recovery of non-performing loans was only worthwhile using the legal systems in cases where the loans involved were large.[46]

Micro-finance institutions tend to make a good substitute for small loans but greater efforts are needed to improve the financial environment and reduce the conditionalities that are often posed by banks as a

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[43] Personal Interview with Jacob Ainoo- Ansah - UNIDO , Accra Ghana, 11th November 2005

[44] Personal Interview, Mr Baeka, NBSSI, Accra, Ghana, 8th November 2005

[45] Kauffman, C, "Financing SMEs in Africa" in Policy Insights, No 7, OECD Development Centre, Paris, OECD 2005, p 1.

[46] Tagoe, N, Nyarko, E, and Anuwa-Armarh, "Financial Challenges Facing Urban SMEs under Financial Sector Liberalization in Ghana" in Journal of Small Business Management, 2005, 43 (3) pp 331-343

precondition to the provision of loans. Given the current problems that SMEs face in accessing loans, it is important to have other financial providers such that would bridge the gap between formal banks and the informal financial economy[47]. Support to micro-finance institutions can be boosted by developing schemes such as long term savings and encouraging the establishment of refinance banks such as 'solidarity banks' in Mali and supporting smaller commercial banks such as those seen in Ghana.[48] Improving access to finance would necessitate several measures such as boosting the capacity of SMEs, making financial mechanisms more accessible to SMEs and improving the business environment and business conditions[49]. Finance is generally cited as a key barrier to SME development. Removing financial barriers would require joint efforts and a coalition of actors within the SME sector to pool their resources together and provide the much needed support to enable SMEs to build their capacity and improve their profit margins.

- **Weak entrepreneurial culture**

Many of the countries in Africa did not go through the process of industrialisation as witnessed in Europe. Moreover, the entrepreneurial spirit is not a dominant trait of societal or personal attributes. In Tanzania, the entrepreneurial spirit is particularly hard to develop as the country has moved from socialism to free market and many entrepreneurs have not been able to perceive the business opportunities that lie untapped in the energy or other sectors.

> *An entrepreneur needs to have certain attributes – developing a business idea to a business plan is a problem for many of our entrepreneurs and it is even more difficult to market these ideas and to implement them. In spite of the huge potential in the energy sector, energy is not perceived as an area that is replete with business and investments opportunities but this is lost on the entrepreneurs. A number of our people do not see why they should pay for energy services. Much of the utilities were either provided free of charge or heavily subsidised*[50].

In Zambia, one respondent noted that the lack of entrepreneurial culture could, in part, be linked to the socialist welfare state of the First Republic which fell in 1990, where cooperatives handed out staples such as mealie meal – the local staple food and their debts were written off during elections periods. Thus, for the average entrepreneur, there is no clear distinction between the home purse and that of the company.[51] Similarly, the socialist movement in Tanzania has also affected the entrepreneurial spirit which has implications for entrepreneurial activities in the energy sector as mentioned above.

Since the majority of countries in sub-Saharan Africa have a weak industrial culture, the bulk of the population rely on cheap imports. In addition, market conditions are often lacking and there exists little or no history of capitalistic processes. SME development and promotion could be a viable option to help boost the local economy, create job opportunities and help to lift young and marginalised groups out of poverty. Entrepreneurial culture is an effective tool to combat poverty alleviation but it needs to have the relevant institutional framework and, more importantly, an existing market. As this expert notes:

> *Our political orientation is also another issue that is a limiting factor. We have vacillated from socialism to a market economy and our understanding of the market economy is very poor. We*

[47] See "Change Agents in the Development of Finacial Services for Small-Scale Enterprises in Ghana" English, P and Henault, G Agents of Change: Studies of the Policy Environment for Small Enterprise in Africa, International Development Research Centre, Ottawa, 1995, p 144.
[48] Ibid, 2
[49] Ibid, p2.
[50] Personal Interview, Oscar Lema, Dar es Salam, 25th November 2005
[51] Personal Interview – Peter Lungu, Agriculture based NGO, Deputy Country director Lusaka, 22 March 2006

say that government is not responsible for doing business but they are collecting tax from business, setting policies and providing services so therefore government by its very nature is an active partner. But there is no orientation in the market economy and no common understanding on what we want to do and the implementers are not oriented to market economy.

- **Poor visibility due to lack of data**

Lack of data has led to poor appreciation of the type of SMEs that exist and their actual contribution to the formal or informal sector in most countries. Studies to determine the extent of the problem are often expensive and above the meagre means of government institutions. Lack of data on SMEs means that they are not properly accounted for in development planning and therefore their potential for economic development is greatly reduced. In Ghana, the government envisages to conduct a study that would give some indication of the types of SMEs that exist and thus bring some analytical and definitional clarity to difficult issues relating to definitions, size of SMEs and their potential roles. This study would form the basis of Ghana's SME policy document. Lack of data and statistics tends to create further planning problems for SMEs and reinforces their invisibility.

- **Other factors hampering SME development**

SMEs tend to evolve and develop their businesses within a solitary environment. As one entrepreneur explains "our ideas are contained within our heads because we cannot share them with others".[52] A number of entrepreneurs tend to be part-time entrepreneurs running other businesses partly because the energy business, especially, is relatively slow. Poor financial management is also a key factor in SME development as this is important in meeting long-term financial objectives.[53]

Whilst there are numerous business development services in all AREED countries, entrepreneurs still have to contend with addressing the bulk of their constraints. Paradoxically, the number of business development services are increasing yet many SMEs still operate in separate clusters and endure problems ranging from poor accounting skills to poor capacity.[54]

The bureaucratic process is also too cumbersome and is a disincentive to SMEs. Paper documents and regulations often bear no resemblance to what happens in reality. Long bureaucratic procedures are necessary trajectories in the establishment of companies. In all the countries under study, efforts are being made to simplify the procedure with regard to starting a business but there is still scope to further streamline the process. In Ghana, the Registrar General's Department is the institution that is trying to make this happen.[55] However, the manager of the small business has to travel to Accra and spend considerable time there, which can be problematical, especially considering that these businesses are mostly owner-managed.[56] The NBSSI, cognisant of this problem, has sought to assist SMEs to complete the forms and send them to the Registrar General's department. As one official states:

The environment is not sufficiently conducive for SME promotion and this is why SMEs stay out of the formal sector to avoid taxes and levies because they are fed up with all the taxes they have to pay and perceived by tax collectors as the cow that must be milked. SMEs have no incentive to become big or

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[52] Personal Interview – Mr Rachid Phiri, Rasma Engineering, 22 March 2006, Lusaka, Zambia

[53] Kalominskas, C. "Non-Financial Returns of Enterprise-Led Development: A study of energy-related enterprises", Sweden, October 2003, p 27.

[54] It is reported that in 1993, there were 53 business development services in Ghana and the number is fast increasing today.

[55] Personal Interview, Mr Baeka, NBSSI, 8th November 2005, Accra, Ghana

[56] Personal Interview, Mr Baeka, NBSSI, 8th November 2005, Accra, Ghana

formalise because they realise that to operate it is better for them to remain small because as you expand you become more vulnerable.[57]

In Zambia, this issue of operating under cover was also highlighted and attributed to the cumbersome legislation that makes formal entrepreneurial activities less attractive.[58]

The lack of institutional co-ordination is a debilitating factor to the promotion of SMEs. In Ghana, the Ministry for the private sector does not have an implementation agency. The NBSSI could work with and act as the implementation agency but co-ordination is lacking. Many officials feel that the NBSSI has been created and left to "collapse"[59]. The lack of institutional support means that the multiplier effect is not felt at the level of SMEs. A number of entrepreneurs are "one-man" bands and that has implications for the way the company is managed.

- **Weak infrastructural development**

The main difficulties for SMEs are not just limited to resources but also access to infrastructure. In Ghana, land acquisition is a real problem as well as access to finance. A number of entrepreneurs tend to work from home as a way of optimising limited resources. There is a need to extend electricity to industrial areas since many entrepreneurs operate from homes so the energy they are consuming is not appropriate for industrial activities. Infrastructure, meanwhile, is non-existent, finance is absent and business development service provision is not always targeted to meet their specific needs. To fill in the gaps, policy responses are urgently required. Although, the Ghanaian government is taking measures to improve industrial sites, access to roads and provision of water to industrial sites is still a considerable constraint for many small businesses.[60]

- **Proliferation of supporting agencies - a policy culture geared toward expansion rather than consolidation**

Institutional and policy frameworks for private sector development and SME support are usually weak in Africa. Many respondents feel that government tends to pay lip service to private sector development but offers very limited guidance for people trying to break into the sector. As one entrepreneur states:

> *In terms of the empowerment of SMEs and private sector development one can say that the desired impact has not been felt. One wonders sometimes who they are assisting? One wonders also what the private sector ministry is doing.*[61]

In almost all of the AREED countries, the private sector is not just cited as an engine of growth; it is also part of the selected sectors that are targeted as part of an accelerated growth strategy as in Senegal or an integral part of the President's Special Initiative as in the case of Ghana. However, the measures taken to improve the situation on the ground are often a reflection of meagre resources given to address monumental problems. As one official exclaimed: "what we are able to do is determined by what we are given".[62] Often, there is a lack of institutional support as ministers tend to adopt new policies. The peaks and troughs phenomenon affects the stability and progress of SMEs and their development.

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[57] Personal Interview with Mr Cletus , Association of Ghana Industries , Accra, Ghana, 10th November 2005
[58] Personal Interview- Alistair Bwembya Kambobe, Ministry of Trade and Commerce, Lusaka, 22March 2006
[59] Personal Interview with Mr Cletus , Association of Ghana Industries , Accra, Ghana, 10th November 2005
[60] Personal Interview with Mr Dawarnaba Baeka – National Board for Small Scale Industries (NBSSI), 8th November 2005
[61] Interview – Glady Manual , Accra, Ghana, 8th November 2005
[62] Ibid

In both Senegal and Mali, institutional examples for SME development belie conventional wisdom. Indeed these two countries tend to have a multitude of institutions that are designed with SMEs in mind. Perhaps what is needed is a framework where these institutions could work in a more concerted and co-ordinated manner as part of a unitary apparatus rather than a multitude of divisions functioning as little fiefdoms. In addition, a number of existing institutions still focus on the pre-creation stages of SME evolution and development when post-creation development (expansion, training, capacity and market development) are all the more crucial. Policy support needs to focus on the production efficiency of the SME and try to evaluate where support is most needed with regard to the overall production chain. The tendency to create a multiplicity of institutions runs counter to the government ethos of streamlining bureaucracy in order to lessen the administrative procedures for new entrepreneurs. Quite often, existing institutions have been made redundant by the creation of new ones when it is clear that older ones could have fulfilled the expected roles and consolidated on previous work. In Ghana, a number of officials attest that the creation of the Private Sector Ministry reduced the role of the National Board for Small Scale Industries (NBSSI) an institution which was institutionally tied and dependent on the Ministry of Trade, working closely with SMEs.

Policies are formulated but they often have few implications and impacts for SMEs. For example, in Ghana, the government is looking at measures to bring down inflation rates but this would have a marginal impact on SMEs. A number of institutional measures that could impact on SMEs are not taken. As one official notes:

> *"Micro-policies could make a difference but that's not done. We could establish policy for business support services but that's not done. There is no policy breakthrough at micro level. The bank of Ghana is talking about reducing rediscount rate but how does that affect SMEs. Those who are given the incentives do not need the money".*[63]

Energy SMEs and Specific Constraints

Energy is an important input in all the productive sectors. With high energy prices on the international market it is important to find viable energy alternatives that can cater for the wide gamut of energy needs on the African continent and, in particular, in AREED countries. This study reveals that there are no distinctions between energy and non-energy SMEs. Institutionally, the state does not appear to have afforded any preferential treatment to SMEs in the energy sector. This lack of distinction underlines the fact that energy is not considered a priority sector in the same manner as agriculture or tourism. Strategic documents such as PRSPs and even the Senegalese SME charter do not single out energy as a key factor in production and enterprise development. The development of the sector and the promotion of energy SMEs would necessitate a new thinking and consciousness. Very often, RETs are not given a strong emphasis in policy documents and implementation strategies and guidance on the uptake of renewables tend to be lacking. Strong institutions are necessary to guide energy SMEs and advocate for energy service delivery and efficiency.

- **Paper policies versus concrete action**

In all of the AREED countries there is a strong will to change the current status quo with regard to SME development and enhancement of renewable energy products. Opinions tend to differ in terms of whether policies should precede market conditions or vice versa. However, in all the AREED countries there is

[63] Personal interview –with Mr Cletus Kosiba, Accra, Ghana, 10th November 2005

enough evidence on paper to show that government is trying to give more primacy to private sector initiatives and the development of a policy document is in part as a product of this new thinking. Nonetheless, whilst there is strong political will this is not often translated into action.

Policies are often broad statements and offer few targets or guidelines in terms of how they will be enforced or implemented. They are very often statements of intent and do not tend to show how policies would be implemented or indeed evaluated and re-examined. Hence, almost all energy policy documents make mention of the importance of renewables and their role in environmental protection but this type of energy resource is often given a peripheral place within energy policy documents. As one respondent articulates: "the policies are not able to support local investors. For instance, if an entrepreneur decides to venture into the commercialisation of gel fuel he will have no support. Conceptually it works but policies are needed to displace charcoal."[64] Policies not only help to guide entrepreneurs and investors but also donors by identifying clear priorities in specific sectors and by, targeting assistance. This is often made even more difficult with co-ordination problems as different ministries tend to have conflicting interests.

- **Poor awareness**

The study revealed a low awareness level with regard to RETs and potential market opportunities available using renewables as an energy carrier. This lack of awareness has also largely exacerbated and reinforced cultural perceptions with regard to renewables. In addition, the uptake of renewables is not helped by the fact that more traditional fuels such as charcoal and woodfuel constitute a source of livelihood for a good segment of the population and other vested interests. This makes it a political issue and in the absence of other alternative forms of livelihood, government is forced to adopt the "softly softly" approach. Quite often, the urban appetite of charcoal and woodfuel is greater than those of rural communities and raising awareness with regard to the alarming rates of deforestation is an expensive exercise which necessitates government to champion the cause and mobilise the necessary funds to do so effectively. In countries such as Zambia where 80% of the population use biomass as an energy carrier there is a great urgency to embark on a massive awareness campaign to reduce the consumption of charcoal and woodfuel and to boost other energy efficiency sources such as improved biomass cooking stoves etc.

> *We cannot, on our own, convince people to adopt other forms of energy efficiency products such as improved braziers. We make them in large quantities but we are unable to reach out to a wide number of people. We do not have the adequate marketing system that would help us to do that. The Department of Energy did help but their assistance was limited to just buying 200 braziers. If the awareness is lacking then the market is non-existent since as entrepreneurs we are not able to manufacture, market and do all the necessary promotional sales stuff single handedly. In Zambia, 50 000 hectares of forest trees are being cut down every year, yet government officials continue to talk about deforestation casually.*[65]

Grid electricity is also largely perceived as the key energy source and people feel that it is worth waiting for, however long it takes, and many among the rural folks tend to accept other forms of power generation such as mini-hydros as a substitute for grid connection.

- **Knowledge deficit**

The energy market is a market that is still in transition and gradually developing. Knowledge deficit is the key inhibiting factor that is preventing entrepreneurs from coming forward. The Energy Regulatory Board

[64] Personal Interview – Dr. Macwani, Consultant, Lusaka, Zambia, 24th March , 2006
[65] Personal Interview –Mr Rashid Phiri, Rasma Enginering, Lusaka, Zambia 23rd March 2006

(ERB) in Lusaka is responsible for licensing all companies dealing in renewables. However, it is noted that because of high costs and limited knowledge of other energy resources, government remains the key player. As one official reveals:

> *"There are open bids for energy projects but competition is not very fierce. Companies are very small and a lot of bidders apply but with little knowledge of what it takes to run an energy business"* [66]

In addition, officials within the Ministry of Energy have had different career profiles and, as one said, "…many of us became experts in the long run through training". The lack of knowledge is all-pervasive, running right across relevant institutions affecting critical ministries that need the capacity through to banking communities. This is primarily because the energy sector is a relatively unknown territory for SMEs and non-state actors. There is a lack of understanding of the financial systems and processes that are relevant to the energy sector. When financial mechanisms are created their interpretation is often subject to diverse interpretation. In addition, banks, especially commercial banks, are not knowledgeable about the energy business and risks involved and are reluctant to go into uncharted territory.

However, knowledge on entrepreneurship, although particularly lacking in the energy sector, is not a stated goal of school curricula. Youths grow up with the perception that the public sector is the natural employer, even when high rates of unemployment and redundancies from key public sectors suggest otherwise. Knowledge of particular technologies is limited since most governments show a bias towards grid connectivity. Thus knowledge of RETs and renewable products tends to be peripheral. Lack of knowledge means that support services are limited and government is not able to play a critical role in awareness raising, especially in countries where deforestation rates are alarmingly high and the use of energy efficient fuels makes environmental and business senses. As one entrepreneur says: "Private companies can come in but they lack knowledge."[67]

Equally, a number of entrepreneurs tend to perceive the energy sector as filled with risks. In addition there are only a handful of skilled workers that are present within the sector. The onerous costs of renewables have not helped in their uptake. However, some officials believe that the promotion of renewables can take place alongside the promotion of entrepreneurship. RETs tend to suffer bad press. Some communities see solar energy as energy for the poor fulfilling lighting needs solely and not able to meet refrigeration needs etc.[68] In addition, numerous failed pilot projects involving RETs, have, to some extent, succeeded in reinforcing the image of renewables. Governments can play a key role in raising awareness. Indeed, examples of the use of renewables such as biogas across Mali and Tanzania have, to some extent, demonstrated the viability of the technology.

Another factor to be taken into consideration is the novelty of the market in renewables, which contributes to the slowness of uptake. The very fact that the energy market is not saturated, meanwhile, presents potential business opportunities. Nonetheless, there are few energy projects at the level of entrepreneurial activities. The energy sector is thus, also a relatively unknown territory for SMEs. The rules of the game, parameters and guidelines necessary for private sector involvement and enterprise development have not been clearly defined. There is little entrepreneurial experience that countries can draw on in order to understand how the market functions and what to expect. As stated by one entrepreneur: "it is not a

[66] Personal Interview, James Manda, Lusaka, Zambia, 24th March 2006.
[67] Personal interview, Dr Bob, Lusaka, Zambia, 23 march 2006
[68] Personal Interview –Cheikh Wade , Dakar Senegal, 4th October 2005

question of potential but the fact that the market potential is poorly understood."[69] In spite of the fact that agro-based SMEs and others such as textiles , food and services rely on energy as a key input, little is known about the energy sector.

One of the major stumbling blocks of SMEs and entrepreneurship development is poor access to resources. LPG solar panels are sole at exorbitant prices which tends to reduce the profit margins of entrepreneurs as well as limiting sales potential. In addition, due to the fact that entrepreneurs have to import a number of renewables, their problems are not just limited to mobilising funds to place these orders, but they also have to contend with clearing the goods from customs. In addition, in countries such as Senegal where the West African Economic Monetary Union's (WAEMU) prerogative on the harmonisation of fiscal taxes applies, the taxation regulations are unclear and customs officers do not have the right reference guide on which equipment to tax and are unable to go back to the previous status quo. In addition, some government officials have expressed doubts on whether tax breaks on energy products in Senegal, for example, would not leave local entrepreneurs more vulnerable and unable to compete, the argument being that such tax breaks would line the pockets of businessmen and certain big companies who would welcome the opportunity as a way of making "fat" profits[70].

- **High capital costs and access to finance**

Costs in the energy sector are prohibitive. At cursory glance, the relationship between energy and SMEs may seem dichotomous. This is due to the fact that energy SMEs tend to require a great deal of investment to start with and most entrepreneurs have little means to do so. Therefore the start-up capital is an immediate constraint for entrepreneurs and the risks and opportunities are poorly understood. SMEs tend to shy away from the energy sector even if this is an important input in most productive sectors including industry where SMEs tend to be largely prevalent. For instance, the high costs of VAT on solar products in Senegal leave a number of entrepreneurs reticent to invest in the sector.

According to Abavana of the Ministry of Energy in Ghana, the high cost of energy equipment prevents entrepreneurs from getting into the commercialisation of solar equipment[71]. The difficulty of mobilising of such funds necessitates making the investment on a hire purchase basis. Entrepreneurs prefer to go to the bank but the upfront cost is the main problem. If there were loan facilities then uptake would probably be much better. However, financing energy projects would require long term loans and taking on such long commitments is difficult for small business men and women who are more concerned with day-to-day survival.[72] Bridge finance is also very limited, in fact almost non-existent in the energy sector. Commercial banks tend to be very reluctant to invest in the sector especially since energy projects take a long time to mature and banks are not keen to wait.[73]

As one AREED entrepreneur states:

> *There are a lot of problems with regard to the availability of gas. We run out of supplies very easily. There is a willingness to pay. Often we find out that funds from the AREED scheme are not enough. We tend to start the business with one pump and one dispenser and when this breaks down we realise that we need to have other options. Gas is expensive – and the accessories are not available. We have*

[69] Personal Interview, Yvonne Faye Williams – Personal Interview, Dakar, Senegal, 6th October 2005
[70] Personal Interview, Diatourou Ndiaye, Ministry of Finance, 6th October 2005
[71] Personal Interview, Mr Abavana, Department of Energy, Accra, Ghana, 8th November 2005
[72] Personal Interview, Dr Bob, AREED entrepreneur, Chavuma, Lusaka, Zambia, 23 March 2006,
[73] Ibid – Dr. Bob, AREED entrepreneur Lusaka, Zambia, 23 March 2006

also to pay a lot of taxes, processing stamps, paying fee, building permits etc etc.[74]

- **Enterprise creation and security issues**

Enterprise creation is often a long and arduous process. For the energy entrepreneur, the procedures are often daunting, necessitating obtaining several permits. This is in addition to the risky nature of the business and potential hazards that are integral to the energy sector. Putting together the different legal papers and licenses is perceived as a serious barrier, both time consuming and costly.

One Ghanaian entrepreneur tells her story of the staggered nature of the process and what it entails:

> *I started the project and business of LPG half way before I heard about AREED. I responded to an advert in the newspaper (Daily Graphic). But there were a number of permits that I needed to have – building permits, land permits etc which were necessary to process before the business could become functional. I was introduced to the business by a friend. Acquiring the relevant papers took two years. Moreover, I was busy working so I needed to persevere. Land acquisition is a major problem. To get to the relevant market I needed to be closer to residential areas since going far in the outskirts of towns would inescapably run me into marketing problems due to lack of markets. I did not know about buying and selling in this sector as I had little experience in this area. I would have needed some training as I had no idea how the business operates. The papers took a long time to be processed. It took a year to get the site inspection and there was need to have water and telephone facilities. The EPA wrote a letter and conducted another inspection. So I needed to produce a site plan, fire report from national fire services etc. etc*[75].

The different constraints and procedures that energy entrepreneurs have to go through to get their businesses started are highlighted in **Figure 1.**

[74] Personal Interview Clara, Accra, Ghana, 10th November 2005
[75] Personal Interview, Clara, AREED entrepreneur, Accra, Ghana, 10th November 2005

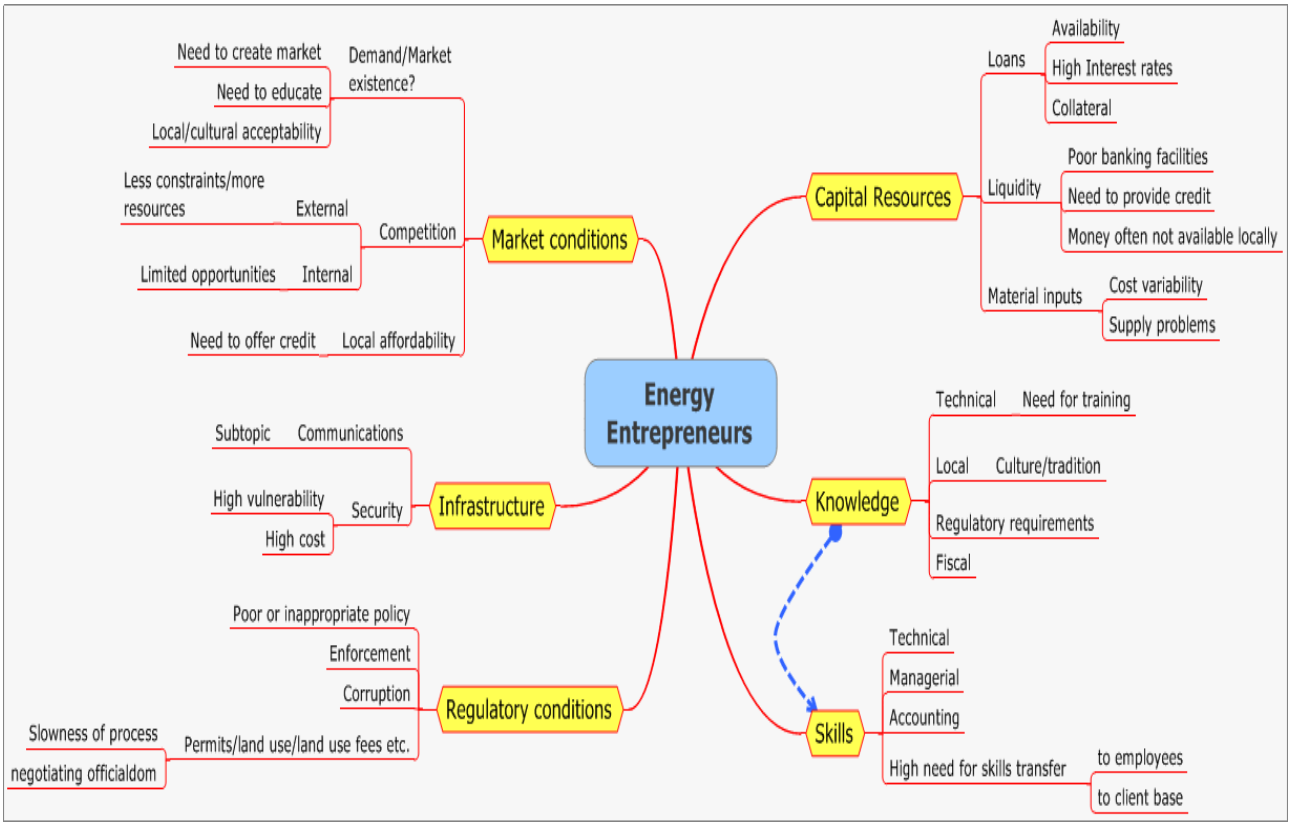

Figure 1: The complex range of issues that energy entrepreneurs have to deal with

Another entrepreneur talks of the heavy bureaucracy that one needs to negotiate even if efforts are being made to reduce burdensome regulations and streamline the process.

> *The bureaucracy is heavy and far too complicated just to get registered. I had to get the company registration and then a license for VAT. Then I had to go to the local municipal council to get a trading license authority. To get the relevant papers and to cut down on time I had to give bribes. I also had to register with tender board and a different set of registration is necessary depending on whether it is a parastatal or private company. In addition I had to get a certification from the Energy Regulatory Board and, because it is an energy business, I had to get through the inspection where the authorities check that I have the relevant equipment for fire and this is from the trading license.*[76]

However, as one official claims, "We have to go through a rigorous check because we need to protect the technology and the consumer. So we need to see a business plan (five years for first-time applicants, three years for renewal), audited financial statements, certification of authority, proof of funds and list of shareholders and directors."[77]..

- **Limited rural energy markets**

The economic base of the people is also an inhibiting factor, especially for people in the rural areas. The nature of the cash economy is such that the uptake of these technologies will remain slow due to the low

[76] Personal Interview – Dr. Bob, Lusaka, Zambia, 23 March 2006
[77] Personal Interview James Manda, 24th March 2006, Lusaka, Zambia

and seasonal nature of cash inflows. In Zambia, the uptake of Solar Home Systems has been slow in rural areas partly because it was based on monthly payments where people do not have a culture of taking things on credit and often do not understand why they have to pay for it.[78] As one official states:

> *A lot of people are not aware of the benefit of using clean energy. What we need is not even capital investment but to see how this can be structured as a specific product given seasonal inflow so that it can be tailored to meet this seasonality of in-flow.*[79]

Communities have problems with capital investments of alternative forms of energy and running costs as well as maintenance which is necessary for the sustainability of the technology. People are not sufficiently sensitised on renewables. Renewables are not on the priority list of the average rural farmer. Meanwhile, even with government subsidies, rural communities are unable to meet the full costs of modern energy services.

The smallness of the market means that renewables cost more (there are no benefits of scale) and that is why the need to finance up front equipment and costs is so essential. According to one official, the general perception is that rural populations cannot get access to certain technologies. But this is somewhat inaccurate because one realises that very often rural people manage to afford technologies that are well above their means via remittances sent by relatives in faraway places but the competitive trait of keeping up with the Jones's does mean that these technologies often become dysfunctional because they are unable to take on the load of fridges and freezers. Their robustness and durability is tested which also questions the credibility of RETs in the public eye. [80]

The urban bias in terms of provision of energy services remains a reality and rural communities not receive subsidised energy to nearly the same degree as urban dwellers. The reasons for this are many but policy is both the problem and the solution in addressing the urban/rural energy divide. In Ghana, grid electricity in urban and rural areas is heavily subsidized, to the extent that the adoption of alternative forms of energy such as photo-voltaic would be gradual. Pricing has policy implications. Private entities and international companies are motivated by profit and even if the regulatory framework is in place with low profit margins and weak demand, the incentive to take non-grid energy to rural areas is limited. Solar energy remains an unattractive source of energy to the private sector as the costs are usually too high. Given the fact that the current environment for the uptake of solar energy is disabling, both policies and behavioural change is needed to get entrepreneurs sufficiently enthused and interested in taking on the rural energy challenge. As one UN agent echoed:

> *The promotion of productive uses of electricity is more expensive and that is a policy issue. The emphasis is still on connectivity.*[81]

Government's perception of substitution energy is an extension of what policies exist. In many government quarters, the preference remains for grid electricity. As one government official states:

> *Solar is not a component and not an alternative for grid power. We are moving up the energy ladder, kerosene, gas, solar electrification – masterplan for solar and we are hoping*

[78] Personal Interview, Oscar Kalumiana, Ministry of Energy, Lusaka, Zambia.
[79] Personal Interview, Mr Immanuel, Dar –es- Salam, Tanzania
[80] Personal interview Mr. Cheikh Wade, Dakar, Senegal, 4th October 2005
[81] Personal Interview – Stephen Duh- Yentumi, UNDP, Accra, Ghana, 10th November 2005

to implement this masterplan in Northern Ghana which constitutes half the country.[82]

In Tanzania, the government has applied a tax waiver on solar PVs but the technology is still very expensive and implementation of policy regulations takes a long time to come into force. In Tanzania, the first effort was made in 1986 when there was no VAT. Import duty was not reduced then but sales tax was reduced from 45% to 5% and, subsequently, import duty was removed altogether. The Ministries of Energy and Finance have taken a number of initiatives to look closely through a steering committee, at solar related projects. The rural context is an entirely different case and there is a need to recognise the specificity of this sector as the risks are far too high. As one official states:

> *We have very good policy statements but implementation is difficult and there is no framework to streamline these services to suit SMEs and their particular concerns. A number of these policies are written in English and there is no Swahili version so how can you take advantage of these if you do not understand the content in the first place. I would argue that lack of awareness constitutes a knowledge barrier in itself. So the policy is not communicated to the system and there are no forward and backward stream linkages between policy and the people targeted*.[83]

In countries such as Mali, higher impacts of poverty and dependency on disposable income result in the provision of energy services with a subsidy rationale.[84] In Senegal, unclear taxation rules mean that entrepreneurs have to factor in other costs in their overall pricing. This undoubtedly limits energy access to the rural poor especially when they to buy the starting equipment up front. Tax exemption is not enough but rural communities need help to buy equipment up-front.

The electrification fund to help rural communities in Senegal may not be enough and there are strong indications to show that other institutional frameworks may be revisited in order to explore how to reduce costs to widen access. The entrepreneur would want to take advantage of an available market when these energy businesses commence, especially within the scope of the ERIL initiative. The elasticity of the energy market is weak and there are not many alternatives. If petrol prices continue to go up, the alternatives would be further reduced. Government officials are wrestling with questions of how to make the system more attractive to encourage entrepreneurial growth, provide relevant incentives to bring entrepreneurs on board and provide subsidies for up-front equipment. Policy and market incentives can help the uptake of renewables but these should be done in a way that helps the market to respond as markets can be forced even in remotest outposts where demand is low. The rural market develops at a snail's pace unless it is forced and this means adopting a technology-neutral approach based on the expressed needs of rural communities. It necessitates a wider engagement and collaboration with institutions that are already in the business of promoting SME development and lobbying relevant government structures to formulate policies that would prompt the market to take off.

Better regulatory frameworks are needed to simplify the procedure as this is still very centralised and people in the districts and rural areas need to come down to register their businesses. For many entrepreneurs, obtaining the relevant working premises is also a problem.

- **Poor confidence in the energy sector**

Confidence in the energy sector remains low in all the AREED countries. Entrepreneurs need to be sure

[82] Personal Interview, Mr Abarverna, Ministry of energy and Mines, Accra, Ghana, 8th November 2005
[83] Personal Interview, Mr Immanuel W. Muro, Centre for Sustainable Development Initiatives, Dar es Salam, Tanzania, 25th November 2005
[84] Personal Interview - Mr Soulemane Diakite – Directeur National, Bamako, Mali, 12October, 2005

that they can benefit from policy support. Given the fact that the policy environment is generally not sufficiently conducive, this tends to affect the confidence of entrepreneurs and their ability to get involved in the sector[85]. Small markets and limited profits all tend to heighten the vulnerability of the energy entrepreneur.

[85] Peter Gatherole, AREED entrepreneur, Biomass Ltd. 24th November 2005

Recommendations

- **A more effective communication tool**

At the moment, AREED has a rather subdued communication strategy if any at all. What is needed is more visibility, both in terms of the available opportunities and results so far obtained. Private-public partnership with relevant ministries designed to cater for SMEs could help promote AREED services and entrepreneurship development. In Senegal, the SME Ministry has developed an initiative whereby support for SMEs comes in the form of a caravan bringing information to potential entrepreneurs and explore the entrepreneurial potential of a specific area and locality. AREED could team up with this Ministry and some of its services could be communicated as part of the scheme to allow greater sensitisation and increase the uptake of RETs. Tools to help develop the full potential of energy services could be complemented with existing schemes (SME caravan, ERIL initiatives etc.) and be given more functionality. AREED would need to move closer towards like minded institutions as part of a policy of proximity to share information and knowledge and ultimately build the capacity of partner institutions. This is necessary particularly in the light of the considerable gap in knowledge in the energy sector which partly prevents the uptake of RETs and the entry into the sector of entrepreneurs to take advantage of potential business opportunities. Communication is central if AREED is to make progress in enterprise development. All partners need to make better use of communicational support (Newspapers, TV, specialised newsletters for entrepreneurs) to make AREED more visible and allow potential entrepreneurs to come forward. Currently, AREED activities are not well known in all five countries.

Closer Collaboration with Government Institutions

It would seem that there is a good working relation between partner institutions and government. Partner institutions should take advantage of such ties and seek ways to "cash in" on this through regular meetings. There is a tendency for partner institutions to work in a cluster thus isolating themselves from a whole range of key institutions (BDS, micro finance institutions) that could help make their work lighter and less solitary. Consequently, partner institutions should identify a deliberate strategy to foster closer ties with relevant ministries to ensure that they are aware of the challenges, opportunities and current technologies available in the energy sector that have made some in-roads. Collaboration would depend on the different context but it would help a great deal if an AREED resource person could be physically located within a particular Ministry (Energy, Private Sector Development) to identify opportunities within the energy sector and build closer ties. Programme Officers working closely with AREED entrepreneurs need to be given more exposure and gain more insight into the policy processes. A number of managers within partner institutions are stretched and have multiple responsibilities which does not always allow for regular meetings. If POs are initiated in the policy processes they can gradually have a clear insight into the system and know how it works in order to propose necessary enterprise related changes and identify and exploit policy opportunities.

Knowledge Sharing

Given the knowledge deficit that is pervasive in the energy sector – there is a need to devote time to the preparation of fact sheets, training manuals that would specifically target a wide range of stakeholders and broaden their knowledge base in the energy sector. Efforts should be made to diversify training material and include short video clip that would give the potential entrepreneur and other stakeholders an idea of the range of energy resources, their application and potential business opportunities associated with different types of energy resources. This information should be updated with current AREED investments

– perhaps through a newsletter and shared with organisations that specialised in the promotion of SMEs as well as key ministries.

Foster Closer Relations with BDS

A number of AREED partner institutions are unaware of the wide range of business development services that are available in their respective countries. This is to a large extent linked to the specialised nature of the energy sector. However, there is an urgent need to broaden the partnership base and identify BDS that are able to add some value to the current work that AREED is doing. These institutions as well as those specialised in micro finance could bring in new breed of entrepreneurs that would have already gone through their screening process.

- **Meeting non-financial requirements**

Financial constraints remain the principal barrier for SME development. However, fixing the financial problem is not sufficient on its own to help SMEs expand and develop their businesses. Greater effort should be given to help SMEs to acquire managerial and business skills, find markets, develop network support systems through information sharing, and develop technical training and capacity building, expanding markets beyond local spheres. It would seem that AREED has focussed more on the provision of loans and little has been done to build the capacity of entrepreneurs. [86]In most of the countries under study entrepreneurs have made mention of the sustainability challenge. Essentially, the difficulty is not so much in getting started but staying "alive". Entrepreneurs in countries such as Zambia are cited as lacking a well-developed business culture and attitude, often considering loans as a free resource, and finding it difficult to separate business from family needs and commitments. In addition, a number of entrepreneurs have mentioned the need to have a full package of services that goes beyond the simple provision of loan. As one entrepreneur says: "After the finances are disbursed, we are basically left to our own devices at times when we are in need of greater assistance."[87]

- **Clustering energy SMEs**

Given the limited market in the energy sector and the potential to be gained through relevant market research and support services – AREED could also help current energy SMEs to cluster their services and bring more cohesion and competitiveness to SME development. This would mean financing a chain of energy services within a viable locality and across their required energy needs to help boost the sector. The market in renewables is relatively small and profit margins could be boosted if a critical mass of markets were achieved through co-operatives and the clustering of services. Given the relevance of information and its implications for business, networking and clusters can bridge the knowledge gap that is pervasive in the energy sector and keep entrepreneurs in the loop by providing them with cutting edge technology and information.[88] Networking is seen as an effective tool for the transfer of skills and technology[89]. Other scholars have argued that clusters are important instruments to foster client-trust in SME networks, thus increasing values such as innovation and competence.[90] The high capital costs of the energy sector are often perceived as inhibiting factors. However, through clustering, limited resources can be used more efficiently and exploited in a synergistic manner. The concept of networking is relatively new in Africa and as one official states, it can work to the advantage of the entrepreneur but it needs an

[86] Napier-Moore, P. REED: Social and environmental impacts of "clean energy" enterprise development, November 2004.

[87] Personal Interview –Dr Bob, AREED Entrepreneur, 23rd March 2006, Lusaka, Zambia

[88] Klerk, G:J: de & Havenga, J.:J: D. "SME networks and clusters and their impacts on economic growth: an exploratory overview of Africa" – unpublished paper – internet findings …..See also Ramachandran, V & Shah M.J: "Minority entrepreneurs and private sector growth in sub-Saharan Africa" Discussion paper RFED. 086, The World Bank, Washington, 1999.

[89] See Klerk et al, op. cit., p5.

[90] Ibid.

able agent to supervise its activities and bring entrepreneurs under one efficient umbrella.[91]

Equally it is important to distinguish the different types of networks and to adopt the one that is most contextually relevant to the specific needs of the entrepreneur. In the African context, two networks are relevant. The first focuses on improving entrepreneurial performance as the main objective through the flow of information betweens members. The second is known as solidarity network which are mainly formed to reduce the high degree of uncertainty that a number of African entrepreneurs feel. Uncertainty in business in the African context ranges from poor quality products, unreliable payments, long lead-times and delays in receiving supplies, stock shortages and lack of contract discipline.[92] The solidarity network can help mitigate the negative impacts that are associated with the lack of social capital and social cohesion which tend to affect entrepreneurial efficiency. Social capital is paramount for the strengthening of entrepreneurial networks.[93] However, given the fact that the networking concept is relatively new, especially in Africa, more efforts should be made to explore possible opportunities and constraints, especially within the energy sector where both capital costs and business security can be influenced by a number of market and non-market uncertainties.

- **Flexibility in the AREED strategy**

AREED projects need to be more flexible to take on the wide gamut of other energy carriers some of which may not be classed as renewables, especially within a context of widespread poverty and a growing need for profitable development initiatives. More and more people are in need of reliable and affordable energy services that can directly or indirectly boost their production levels and enhance their products. AREED could work closely with programmes such as ADEPME by targeting would-be energy projects. The focus could also extend to the promotion of entrepreneurship through investment in companies and people that are reliant on energy inputs to make their businesses more sustainable whilst reducing their drudgery.

- **Making energy the cornerstone of SME development**

Policies are in place to support SME development but energy is not given the necessary emphasis to help new entrepreneurs take advantage of available opportunities. In almost all AREED policy, SME support is neutral and where distinction is provided in terms of preferential treatment (tax breaks etc) the energy sector is not always the obvious target. Perhaps providing examples of similar cases where tax exoneration has worked could help the Senegalese government to take the necessary tax leap that would empower local entrepreneurs within a well regulated and well-policed framework. AREED could work with government in some kind of public/private partnership to provide information that makes government perceive the energy sector as deserving of preferential treatment and granting of incentives. The ERIL initiative could be an effective tool where SME and private sector development is recognised as a key objective in bringing energy services to the rural poor and underserved.

- **Using existing mechanisms to strengthen institutional frameworks**

The proliferation of energy SMEs will necessitate strong institutions that will create the right business space and incentives to give these businesses a head start. The creation of new institutions will not, however, necessarily address the current problems. However, it is important to raise awareness amongst existing institutions on the merits of energy SMEs and their role in enterprise development and job

[91] Personal Interview, Mr Phiri, National Technology Business Centre, Lusaka, 23 March 2006,

[92] Barr, A. "Do SME's network for growth"? in Enterprise in Africa: Between poverty and growth. (Ed.) King,K & McGrath S. London, Intermediate Technology, 1999.

[93] Fafchamps, M. "Solidarity networks in pre-industrial societies: rational peasants with a moral economy" in Economic Development and Cultural Change 41, 1, 1992.

creation. Partnerships between institutions and ministries responsible for SME development in AREED countries could be forged so that in the relevant ministry there is one resource person conversant with energy issues that can help to mainstream such issues as part of the general policy of enterprise development. The multiplicity of institutions providing similar services tends to exacerbate turf "wars" as the critical issue is often survival and the needs of SMEs are perceived as secondary in the face of personal, parochial interests.

- **Levelling the policy playing field**

Policies tend to be part of a double-edge sword. On the one hand government has gone beyond the sheer manifestation of a political will and rhetoric by setting up a specific Ministry for SME development and concomitantly institutions that would help SMEs through the different evolutionary phases. However, government support and largesse does not extend to other fiscal collection and tax breaks and this, currently, tends to impede SME development and participation especially in the energy sector. Senegal is a case in point where government initiatives give SMEs a great deal of freedom, flexibility and latitude in their development but sets a number of hurdles where imports of equipments and access to technologies are concerned. Attention needs to be given to existing regulations and laws, particularly with regard to imported energy equipment in order to soften the blow and help entrepreneurs expand their businesses.

- **Improving the current perceptions prevalent in the energy sector**

Through its partner countries, the AREED programme could also help to improve the perception or rather misperceptions that are pervasive in the energy sector. These are mainly:

  - that the energy sector does not attract small players as a result of high capital costs
  - that only big petroleum companies and investors in big hydropower plants have a place in the energy sector and business
  - that energy projects take too long to mature
  - that business potential in the energy sector is negligible
  - that energy businesses are uncertain and unpredictable
  - that the knowledge gap in the energy sector is unbridgeable and attempting to do so is time-consuming
  - to establish an energy business in the rural area is an impossible mission

Knowledge that demonstrates viable businesses within the AREED portfolio can help to reduce such biases and facilitate the process of engagement between different stakeholders within the sector. Providing information on successful businesses in renewables or energy efficient products could act as a springboard in changing government's bias from grid electricity to explore and promote other viable non-grid options as well as to increase the confidence of more sceptical actors.

- **Involving research institutions as part of the decision –making process**

Research institutes such as the National Institute for Science and Industries in Zambia, CNESOLER in Mali and CERER in Senegal, that are working on renewables, need to be given more value and their inputs sought and incorporated within the overall process of decision-making. The findings of scientific research institutes can help policy makers in the design and implementation of policies and also in setting realistic targets and priorities. A number of these institutes have conducted pilot studies and are doing experimentation on renewable energy technologies (biogas digesters – Western Province, Zambia) but they seem to operate in isolation and their findings do not tend to inform policy directions and map out economic growth in terms of entrepreneurial development.

- **Increased co-ordination between relevant ministries and institutions responsible for SME development and promotion**

For policies to be effective and to play a supportive role there must be some coherence and a high degree of collaboration and communication between relevant institutions and ministries dealing with SMEs. In the AREED countries, the institutions working on SME development do not work hand in hand with the relevant Ministries. This lack of co-ordination can hamper SME development as entrepreneurs often do not know which institution to turn to and are not able to seek guidance or indeed exploit the services offered by a particular institution. Co-ordination is particularly important in the energy sector where the knowledge gap is huge. If co-ordination is done properly it can help improve the business environment, make good use of information and business services as well as create a good networking community.

Conclusion

It is true that institutional structures to support the development of SMEs are, currently, firmly in place. It is also true that governments in the AREED countries are conscious that SME have a considerable role to play in local and national economic growth. The statement relating to SME constituting the bulk of the economy and accounting for 80 to 90% of the economy is frequently bandied around. Why then are institutions so slow to provide support for a sector that constitutes the bulk of economic potential? Do SMEs actually constitute the engine of growth in AREED countries? Why, as one official puts it, has the engine being left to corrode for so long? The answers to these questions are not so straight forward and translate both the political and economic malaise that many African governments are associated with. The trajectory of SMEs is not very dissimilar to other development sectors. They show the determination of the governments to steer the course of development and also its limits in taking the necessary steps that would lead to implementation. They highlight the fact that policies are formulated but synergies and linkages with critical sectors are often overlooked. They also demonstrate that, often, the stated objectives in development plans do not reflect the policies that are in place. Energy is seen as a critical sector necessary for socio-economic development yet translating this objective into concrete actions remains a huge challenge.

Policies in favour of SMEs are energy neutral – sectors such as agriculture are given more attention mainly because the bulk of the population, particularly in rural areas, relies on agriculture as their main source of livelihood. Institutions in place are becoming more aware of the need to mainstream energy in development programmes and initiatives. Energy is seen increasingly as an entry point to addressing much more complex socio-economic problems that are implicated in health, education and transport. However, there is still a rhetorical gap between the aspirations of governments in the AREED countries and reality. This gap is even bigger when one analyses stated objectives mentioned in policy documents and concrete implementation on the ground. It would seem that, in spite of the growing consciousness implicated in the proliferation of many energy initiatives, there is still a tendency to factor energy needs as an afterthought rather than being integral to development plans and aspirations. If, as one official claims, there were as many as 53 business development services in Ghana in 1993 and that none of these were related to energy, then it would suggest that the energy sector is not seen as a critical sector to business development or the creation of wealth and jobs. What is certain is that the "reflexes" needed to invigorate the sector through the creation of new enterprises providing energy services is rather foreign to many of the decision-makers.

In addition, the rhetoric of providing energy services to the rural under-served is still aspirational in spite of huge strides taken in some countries. The fact that the AREED initiative is "struggling" with energy service delivery and enterprise development in a rural context underscores the complexity of rural dynamics. Given the difficulty of market penetration in the rural areas and the lack of infrastructural development, more emphasis should be placed on social development especially since poverty levels are so high. Consequently, one would argue that market considerations should be sacrificed for social development and poverty reduction should be given more primacy than the mere provision of "clean" energy per se. The uptake of renewable is slow and the absorption rate is not properly in place to offset the overheads. Moreover, donor programmes that have failed have created negativity in people's minds which will take time to change.

SMEs are perceived as an engine of growth and energy is largely equated with a socio-economic development tool. Hence, AREED has the perfect formula for both the reduction of poverty and the

enactment of economic growth by combining two effective tools i.e. SME growth and energy service development. However, in all of the countries under study and in sub-Saharan Africa as a whole, the culture of industrialisation is quite weak and the energy sector remains a novel sector where market initiatives are rather limited. Whilst it is evident that whilst there is a new dawn for SME development, the enthusiasm for enterprise development is not matched by the creation of an enabling environment in which energy SMEs act as a catalyst for private sector initiatives. Institutional changes and reforms are made but the energy sector is not singled out as a priority sector for enterprise development and wealth creation. Thus in spite of key institutional changes to promote the development of private initiatives, there is still a lot to do in order to improve the business environment of energy SMEs.

The slow pace of the institutional machinery means that it may quite take a while before companies can reap the full profits of measures that are put in place to serve them, but it also means that any public private partnership between government and AREED needs to be conceived within a longer time horizon. Multisectoral committees also represent new hope to inject some dynamism into the sector and encourage greater co-ordination among critical sectors. In addition, collaboration with ministries responsible for SMEs and also economics and finance is another obligatory passage for institutional setting.

AREED has a key role to play which includes improving the image of energy SMEs and knowledge sharing. For now, most industries in Africa tend to focus on agro industry and agriculture but all of these activities are reliant on energy inputs. Consequently, this would also mean raising awareness through the promotion of energy both as a direct and indirect source. Moreover, efforts will be needed to level the playing field. It is not about creating incentives because government is doing that – it is about ensuring that incentives created meet the needs of SMEs rather than the big companies that are in a position to take advantage of these incentives. For instance, governments can remove taxes but only entrepreneurs that are well conversant with the system can take advantage of these tax breaks. SMEs are not well organised and there are often few verifiable indicators to determine whether they are gaining from government policies and how they can also use their organisation to lobby the system and seek support.

What can government do? The entry point remains a huge problem. Some would argue that if market conditions are not there they have to be created. The environment has to be levelled and this would take a change in perception orientation and mindsets. There is economic potential and a number of people are willing to do business as the rise in cell phone use clearly demonstrates. In addition, road infrastructure is improving in many of the AREED countries. However, the challenge is not just an institutional one. AREED as a programme would need to make several changes so that the structure in place is able to embrace the institutional orientation that is envisaged. Local entrepreneurs and local country partner institutions need to be further empowered in order to create a critical mass of entrepreneurs. Currently the potential to scale up energy delivery services and extend these to rural areas is not fully utilised.

Local partner institutions need to be able to communicate the AREED potential to stakeholders at different levels and develop partnerships with like minded organisations. Communication has remained timid and a wide range of stakeholders are not aware of the programme. The programme should make it a deliberate strategy to develop its communication wing and provide partner institutions with the relevant resources to invest in different tools that would open up the full communicative potential of AREED and invite a new brand of savvy entrepreneurs to come forward. Partners need to be fully appraised of the decision-making process to increase their confidence in the programme and reinforce their roles as front runners and local stewards of the programme. Communication and consultative mechanisms are necessary to improve horizontal relations between AREED partners and E&Co to promote a climate of trust and greater co-operation. Empowering local partners will sensitise government institutions in the role they have to play

and could result in the sharing and transfer of skills necessary for a full institutionalisation of AREED with strong local partners playing a central role in enterprise development, resource mobilisation and capacity building.

More efforts are needed to encourage shared learning space for enterprise development and to take advantage of other related services provided by business development services. Energy entrepreneurs have specific needs but a number of their needs are similar to general entrepreneurial needs necessary for different stages of entrepreneurial development. In addition, given their specific constraints and requirements and the sense of isolation they tend to feel, AREED partners should work towards creating a network that will provide a space for entrepreneurs to come together and share their experiences and successes. This could be a learning zone and could encourage collaboration and even help to initiate further potential business ventures.

Finally, given the fact that energy is increasingly considered as multidimensional and multifaceted, it is important that the AREED approach and philosophy is given a new focus to take into account changing dynamics. Whilst the concept of clean energy services is in perfect harmony with donor aspirations one wonders whether other types of development alternatives should not be considered as part of the full "energy menu", especially when they are able to cater for developmental needs and serve as useful tools for poverty reduction. A multi-tiered approach is needed, especially for new entrepreneurs who have not acquired the necessary business acumen to take advantage of current business opportunities. It would seem that only people with relevant business experience and knowledge of energy issues can effectively take advantage of the system.

Whatever course that AREED takes in terms of fine tuning its strategy to suit current institutional arrangement of creating more flexibility to attract other entrepreneurs that are using energy as an intermediary input, what is certain is that enterprise development and energy services constitute an important formula in the reduction of poverty and in developing the energy, creating an entrepreneurial niche for women and men and developing the sector to its full potential. This challenge is needed in order to convert the Millennium Development Goals from aspirational goals into concrete actions.

Strategy for Action

General Actions

Institutional Strengthening

- Strengthen the current institutional framework necessary for the uptake of renewables and the development of energy SMEs
- Use current energy initiatives to mainstream the needs of energy SMEs into development programmes and plans
- Create an institutional support group (using institutional initiatives such as the multi sectoral committee as a springboard) to review current macroeconomic environment, institutional regulatory framework , licensing, taxation and fiscal regulations that make the current business environment unfavourable
- Set up a task force linked to the multi-sectoral committee that would do specific analyses on SMEs and energy linkages
- Define a strategy for the development of renewable energy and linkages with SMEs
- Link current renewable research institutions (CERES- Senegal) and CNESOLER (Mali) to energy SMEs and to the AREED programme by providing inputs and information on types of investments, viability of the energy sector and technological advancements of certain renewables
- Enhance and improve knowledge of government officials with regard to energy SMEs ranging from key sectors

Stakeholder Participation

- Define a strategy for the adoption of closer links with a wide range of stakeholders in particular government officials to put in place the relevant structures that would make energy a preferential sector for targeted interventions
- Develop partnerships with current in-country initiatives to put in place an institutional framework that would provide the ingredients necessary to create an enabling environment
- Collaborate with donor agencies such as USAID, World Bank, UNIDO and UNDP through their various SME support services to identify different comparative advantages and how this can be use to support government and create greater awareness for SME promotion and development
- Develop a regular consultative mechanism with current energy initiatives through multi-sectoral committee or other energy initiatives
- Use multi-sectoral committee where they exist as the main institutional anchor and a vehicle for the inclusion of SMEs on the development priority of AREED countries
- Organise a retreat to raise awareness on enterprise development and linkages with energy SMEs

Knowledge Enhancement

- Do a preliminary study on institutions that are providers of business development services and create a regular consultative mechanisms
- Reduce the knowledge gap by creating an energy desk at the Private sector ministry to explore energy opportunities and develop linkages with energy SMEs

- Organise periodical seminars to bridge the knowledge gap as a strategy to bring stakeholders together and to emphasise shared interests

Specific Country Interventions

Ghana

Institutional Changes

- revive the multi-sectoral committee and use as an anchor for policy advocacy and lobbying for energy SMEs and their inclusion in mainstream energy policies

Knowledge management and Capacity Development

- Review and study the barriers to the creation of energy SMEs in the rural areas and provide recommendations through the NBSSI and private sector Ministry on strategies for a decentralized licensing procedures
- Organise fairs, seminars and exhibitions to stimulate weak demand especially in the rural areas and to highlight potential opportunities within the energy sector
- Organise seminars in close collaboration with other business services providers to disseminate market related information and provide courses on packaging and product quality necessary for the viability and expansion of SMEs
- KITE to organise seminars in collaboration with similar like minded support services to reduce the negative perceptions of banks vis a vis SMEs and to explore together with a wide range of stakeholders entrepreneurial opportunities in the energy sector
- Establishment of a data bank that would generate knowledge and pool together important resources on the energy sector and SMEs to be housed either within the premises of KITE or in collaboration with a research and development organisation
- In concert with the Ministry of Finance, train bank officials to dispel current misperceptions in the energy sector, reduce the knowledge gap and strengthen the credit delivery system so that energy entrepreneurs could take advantage of available credit from a multiple of sources
- Training of bank officials could also create a better understanding of energy SMEs and provide a climate of engagement, confidence and trust between banks and entrepreneurs – this climate of trust would also help to reinforce policies and give decision makers the necessary signals for the institutionalisation of an enabling environment

Communicational Strategies

- Use the media to feature successful AREED business men to increase awareness , to encourage and inspire a new calibre of entrepreneurs and to identify the potential business opportunities available in the energy sector and within a particular locality

Exploring Synergies and Developing Partnerships

- Together with NBSSI, AGI, Ministry of Trade and Industry identify opportunities within the current educational system and curriculum to develop a new programme that takes into account entrepreneurial training and conduct entrepreneurial awareness seminars in colleges, vocational centres and across the country

- Team up with NBSSI, AGI and Ghana Association of Consultants to critically review institutional arrangements and framework on a periodical basis to provide structured inputs and support to governments in order to strengthen institutional support to SMEs especially energy SMEs.

Specific Actions – KITE

- Identify comparative advantage of KITE as an institution and potential role in the drafting of the SME policy that is envisaged in Ghana
- Identify alternative source of funding necessary to start and complete the study geared towards the formulation of an energy policy
- Provide inputs in the form of AREED investments, possible opportunities in the energy sector to the task force that is designated to draft an SME policy and guidelines for policy decision makers
- Use current poor status of infrastructural development (access to water and electricity) as an entry point to underscore the importance of energy in entrepreneurial development
- provide institutional support by teaming up with NBSSI, AGI the Ministry of Trade , Ministry of Energy and Mines and the Private Sector Ministry to provide a task force group that would define the broad parameters of an SME policy
- conduct a study with relevant partners and institutions to map the constraints, macro economic environment and opportunities for SMEs with specific reference to energy SMEs

Senegal

Institutional Changes

- Conduct a study in collaboration with SME Ministry, APIX and ADPME to determine the varied nature of government initiatives for SME development and use a small sample of entrepreneurs from different sectors to determine the impacts of such interventions
- In consultation with PREMs and CIMES identify strategies to develop an effective institutional networking group able to act as an advocacy tool for SMEs and also as an information and knowledge sharing mechanism
- Be part of the task force working on SME policy to map a strategy for the SME charter to translate into law
- Develop strong links with the SME Ministry and participate in initiatives such as the SME caravan to help bridge the knowledge gap and explore possible opportunities available in the sector.

Partnerships and Collaboration

- Work closely with other institutions such as the youth fund FNPJ to provide training course, disseminate information and share knowledge on the energy sector , opportunities and challenges
- Use regional bodies such as ECOWAS especially with regard to current white paper initiative to develop energy and SME reflexes for enterprise development in the energy sector and help improve institutional awareness. This information could be disseminated to other regional bodies such as WAEMU and continental institutions such as NEPAD

- Work closely with the Ministry of energy in order to identify a strategy for the adoption and implementation of the renewable energy policy
- Develop a strategy in consultation with ASER on the new energy initiatives and identify barriers that could hinder the inclusion of smaller energy SMEs and prevent them from taking advantage of available opportunities
- Identify strategies with ASER and the Ministry of Energy on concrete incentives that could be given to energy entrepreneurs to boost the sector and stimulate demand
- Provide information on AREED investments to Ministry of Energy and other relevant stakeholders to provide some evidence of the viability of the sector and the linkages with SME development – this could also help the government in its policy formulation

Specific actions – Enda Tiers Monde

- Partner institution Enda needs to adopt closer ties with SME Ministry and other stakeholders
- Enda needs to be part of the task force that is looking at tax breaks in the energy sector and provide inputs to identify barriers associated with the current tax system and how this could contribute to making the business environment unfavourable for energy SMEs
- Enda should strengthen its communicational ties with like minded institutions to explore possible strategies and partnership strategies
- Identify "win win" opportunities that would help soften the blow for SMEs with regard tax regulations and allow government to reap some fiscal benefits
- Develop stronger links with specific structures such as APIX and ADPME and adopt a policy of inclusion that would mean periodical reviews of energy projects and possible opportunities that SMEs could tap into
- Develop strong ties with CERES through the provision of information related to renewables and SMEs and take advantage of their findings and pilot studies on renewable to convince stakeholders at different levels of the wide range of opportunities available in the energy sector
- Organise seminars and exhibitions which would pool together entrepreneurs, micro finance institutions, banking officials, donor communities and specific institutes responsible for women entrepreneurship development to raise awareness and explore business opportunities

Mali

Institutional Changes

- Revive the current multi-sectoral committee as the relevant institutional anchor to provide support and leverage for SME development
- Conduct a study with the poverty reduction strategy centre - CSLP, the Ministry of Private sector, the Depart of Industry to identify current institutional barriers and ways remedial ways of reducing such constraints

Partnerships and Collaboration

- Work closely with AMADER to identify possible opportunities for SMEs in the current scheme for the provision of energy service and identify complementary measures necessary to boost SME support

- Work with the Malian chamber of Commerce and the new centre responsible for investment in order to include priority areas for energy SMEs and provide specific information to these stakeholders on opportunities and constraints existing within the centre
- Organise a retreat that would bring together key institutions to understand the specific challenges that SMEs face and identify a road map for action that would include mainstreaming energy needs in all the relevant sector
- Identify specific areas within the priority areas for accelerated growth in the agro-industry where energy SMEs can provide useful inputs and use this as a anchor point to gather support for energy SMEs
- Identify with AMADER and Ministry of energy current constraints that are impeding rural entrepreneurs from taking advantage of enterprise development initiatives

Specific actions for Mali Folkecenter

Knowledge Management and Capacity Development

- Disseminate knowledge on AREED related investments in Mali to relevant stakeholders in order to improve knowledge on the AREED programme and to appreciate the nature of energy investments and their viability
- Analysis on tax breaks in Mali and economic impacts could be done and shared with countries such as Senegal with similar economic and geopolitical attributes as an advocacy tool
- Information on renewable technologies in relation to AREED investment could be shared with CNESOLER and pilot studies on several renewables initiatives conducted by the latter could be used to dispel negative and entrenched misperceptions on renewables
- Showcasing successful investments such as ECOHOME could be used as a promotional campaign to attract other entrepreneurs
- Training programme could also be provided for entrepreneurs in collaboration with support services such as STEP (World Bank) to help entrepreneurs in marketing and developing their products
- Provide seminar and training for Malian banks to highlight possible opportunities within the energy sector

Partnerships and Collaboration

- Be part of the multi-sectoral committee and use this as a springboard to mainstream specific needs of energy SMEs
- Work closely with the Ministry of SME development in Mali to identify how to integrate on-going initiatives on SME development and strategies for energy SME mainstreaming
- Use current status as the designated Partner Forum/AREED Secretariat to gauge current mood for development of energy SMEs through the provision of information and fact sheets
- Work closely with the Ministry of Energy and Industry to promote internal audits in some industries particularly those that are heavily reliant on energy as a direct or intermediary input

Communication and Outreach

- Develop a media strategy to raise awareness and gather support for energy SME development

Tanzania

Institutional

- Strengthen institutional support by providing a resource energy person in the key private sector ministry
- Develop close contact with the Ministry of Energy in order to identify criteria for stakeholder inclusion in REA and REF and the rules of partnership
- Facilitate the inclusion of SMEs as part of the REA and REF initiatives and their efforts to develop new energy markets
- Identify opportunities for SME development in the energy sector
- Identify opportunities for the strengthening of institutional and regulatory framework in support of energy SMEs
- Use the current transitional period to position oneself in order to identify institutional measures that would support SME development

Partnerships and Collaboration

- Work closely with planning ministry, department of trade and industry to inject SME responses in key policy papers and initiatives
- Review current SME initiatives that are integral to activities under the purview of the planning Ministry and department of trade such as Business Environment Strategy in Tanzania (BEST) to evaluate its impacts on entrepreneurs
- Develop an energy entrepreneur road map or chart to highlight constraints in the sector and suggest ways of reducing these constraints
- Work closely with the Ministry of Energy and the renewable energy centre within the Ministry to provide guidance to REA,
- Work closely with the Ministry of Finance to identify barriers that are impeding the uptake of LPG in the rural areas and possible opportunities for enterprise development

Knowledge Generation and Capacity Development

- Identify AREED investments and links with renewables and in order to identify possible areas where energy SMEs could invest
- Constitute a task group that would identify the barriers to implementation of the SME policy and would identify remedial steps
- Use the task group as the anchor to help better co-ordination among ministries conducting work relevant to SME development
- Facilitate the establishment of a task force that would serve as an advocacy group to promote renewables and link its development with energy SMEs entrepreneurship
- Organise periodic meetings with a core group of experts that would explore policy directions and effective strategies for mainstreaming energy SMEs
- Need to facilitate cross sectoral linkages especially with regard to SMEs and their inclusion in the formal national economy

Specific TaTEDO Related Actions

- Use TATEDO's in-house initiatives on improved stoves as an entry point to attract entrepreneurs on the viability of the energy sector and the possible opportunities

- Use services such as SME competiveness fund at the Ministry of Trade and Industry to develop energy reflexes within related sectors

Knowledge generation and Capacity Building

- Provide training courses to entrepreneurs to cultivate the culture of entrepreneurial development
- Organise seminars and workshops for banking official and a wide range of stakeholders to raise awareness on energy SMEs
- Work closely with micro finance institutions such as FINCA to raise awareness on energy SMEs but also to extend small loans to entrepreneurs as a starting point for bigger business ventures
- Provide training services in Swahili to broaden the entrepreneurial base in Tanzania and stimulate demand in the energy sector

Communication and Outreach

- Make use of different medium to cultivate a thirst for entrepreneurship development ; to bring new players in and encourage competition
- Identify a number of business development services and donor agencies that could provide leaflets and public awareness materials in order to gradually change the current entrenched cultural and socialist belief systems

Partnerships and Collaboration

- Work closely with banks to improve awareness on SMEs and extend credit delivery mechanisms that would stimulate the relevant capital investments that would encourage the uptake of alternative forms of fuels
- Work closely with the Ministry of Energy on sensitisation campaigns to displace the widespread use of charcoal and to highlight the benefits associated with using non – traditional fuels
- Work closely with other BDS and micro finance institutions to provide support services to entrepreneurs to help them develop business plans and gradually cultivate the necessary entrepreneurial spirit.

Zambia

CEEEZ

- Conduct a study on the external and internal factors that could be hampering entrepreneurial development in the energy sector
- Convene a meeting with the Ministry of Energy, Ministry of Trade and Commerce , SEDB, the Zambia Chamber of Small and Medium Business Associations (ZCSMBA), Energy Regulatory Board, National Institute for Scientific and Industrial Research (NISIR) and other like minded institutions to get a sense of opportunities available for SMEs and start a consultative group that would meet periodically to map out future orientations for SMEs
- Make greater use of personal affinities between the managers of CEEEZ and government officials to engage with government institutions and other stakeholders through the sharing of information on AREED investments in Zambia and general progress
- Identify in-country business development services and develop collaborative ties with them (these could be instrumental for screening potential entrepreneurs)

Communicational Strategies

- Organise a workshop/exhibition that would bring entrepreneurs and stakeholders together
- Organise a series of training session that would build capacity of entrepreneurs and other stakeholders (banking community, BDS) with regard to energy resources and potential business opportunities
- Provide a space for AREED entrepreneurs past and present where knowledge and experience could be shared and lessons can be drawn with regard to running a successful business in the energy sector
- Advertise AREED programme in selective newspapers and newsletter that are catered for entrepreneurs and entrepreneurial activities

Partnerships

- Team up with BDS and microfinance institutions that would also run courses on business ethics and management (especially training that goes beyond enterprise creation) to enable energy entrepreneurs to take advantage of these training courses
- Work closely with government official through a steady and continuous consultative mechanisms that would lobby for change with regard to awareness on RETs, and other incentives that could be beneficial for energy SMEs (Fiscal, market, etc)
- Introduce POs to the chain of policy processes and organise an informal meeting with key people at relevant ministries to get a clear picture of the constraints faced with entrepreneurs

Action Plan

Actions	Specific Objective	Outputs	Responsibility	Verifiable Indicator	Means of Verification	Date
Action 1: Communicate the findings of policy review work to key stakeholders For instance in Senegal – CIMES,	**Action1**:to gauge reaction with regard to SME as a separate sector within the multisectoral group	**Action1:-** report -synthesis document	**Action1**:Partner institutions	**Action1:**Stakeholder consultation or meeting to discuss findings	**Action1:-** Enquiries on AREED - Survey - Discussions	**Action1**:By end of May-beginning of June
Action 2: Conduct an-in depth study on the range of BDS and other stakeholders that could be used to create an AREED SME network	**Action 2**:- to identify potential players - to galvanise support for SMEs in the energy sector - to identify comparative advantages of different institutions and how this could be exploited within the larger AREED family	**Action2**:Report Survey Consultation	**Action2**:Partner institutions with assistance from UNEP, URC etc.	**Action2:**Request for partnerships Request for information .	**Action2:**written requests - number of correspondence - survey/interviews	**Action2**:July –August
Action 3. Organise a training workshop/retreat	**Action 3**: to create awareness on energy SMEs and their potential; interface with other sectors and agencies responsible for the private sector	**Action3**: workshop and training -fact sheet material on different types of renewables - material on investments	**Action3:** Partner institution in collaboration with UNEP and E+Co	**Action3**:more stakeholders are aware of AREED - more request for information on AREED and renewable energy business potential - state and non-state actors, banks and microfinance institution express desire to work with AREED Action4: More linkages with AREED, greater ownership	**Action3:** Written requests, expression of interests from entrepreneurs	**Action3:** End of Aug. ust
Action4: Set up a desk within the ADPME that would promote the development of energy SMEs – liaise with Ministry of Private Sector	**Action 4**:to integrate the specific issues of energy SMEs within the overall scope of energy and development to bridge the communication gap by bringing government officials up to speed with AREED activities and investments To foster closer ties with government institutions and facilitate the institutionalisation process of AREED	**Action 4:** AREED desk in relevant institution	**Action4**:Partner Institution in collaboration with relevant ministry of institution		**Action4:** enhanced consultation, AREED as part of the institutional set-up or even official policy documents and reports	**Action 4:** End of September
.Action5:Reinvigorate multisectoral committess and association of companies and individuals that deal with RETs 5.	**Action5**: to identify who is who in the renewables energy sector /SME sector and act as a unifying force/lobby to change perceptions	**Action5**: Meeting Consultative group and retreats	**Action5**: Partner institutions	**Action 5**: Closer ties with Multisectoral committee, projects designed with energy SMEs in mind	**Action5**: More efforts to mainstream energy SMEs in national projects Energy SMEs are given special exoneration (tax, fiscal) More awareness on energy SMEs	**Action5:** October-November
Advocacy - Pressure lobby group	- Use Partners as a mouthpiece to represent energy SMEs and flag issues relating to the SME sector to act as a lobby group - to raise awareness on energy efficient technologies and environmental and					

	social benefits					

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Appendix

Energy profile of AREED Countries[94]

Senegal

General Energy Profile

A cursory glance at the energy sector in Senegal would reveal a modest resource base. However, the sector occupies a strategic and important position in the overall economy of Senegal. Notwithstanding, the burgeoning urban population has placed heavy demands on the nation's ability to cater for its population across the country.

The energy sector in Senegal is heavily constrained by structural difficulties, differential access, and difficulty in mobilising funds necessary to modernise the sector. The electricity sector is dominated by the main utility provider SENELEC that is now a privatized entity. However, production facilities are rather obsolescent and onerous from a consumer's point of view with average unit of electricity charged at approximately 90CFA francs/kWh.

Electricity access in rural areas is also limited to the extension of the national grid and reliance on state funding. In spite of the fact that government is heralding renewable energy as important in the energy composition of Senegal and in extending access to remote non-grid areas, the uptake of renewables is still fairly limited. Petroleum products are expensive and talk of crude oil found in the Southern Senegal has remained rather speculative whilst research remains exploratory and tentative. Biomass is also getting to be a scarce resource as woodfuel is depleted at an alarmingly high rate causing deforestation and desertification. Given its preoccupation of the current energy scenario the Senegalese government has sought to make a number of institutional changes through the adoption of a Policy Letter on the Development of the Energy Sector (LPDSE 1997), and by formulating policies for the management of forestry resources which would help to regulate consumption patterns.r

Senegal's high energy costs, poor management of natural resources, poor provision of electricity and inability to meet its balance of payment necessitated a series of reforms. The rationale behind the reforms were to reduce inefficiency in the sector and to provide cheap and reliable energy services. A number of these reforms are in line with the macro-economic policies characterised by the implementation of a global adjustment programme and the reorientation of the state regarding its policy towards planning, regulating and monitoring.

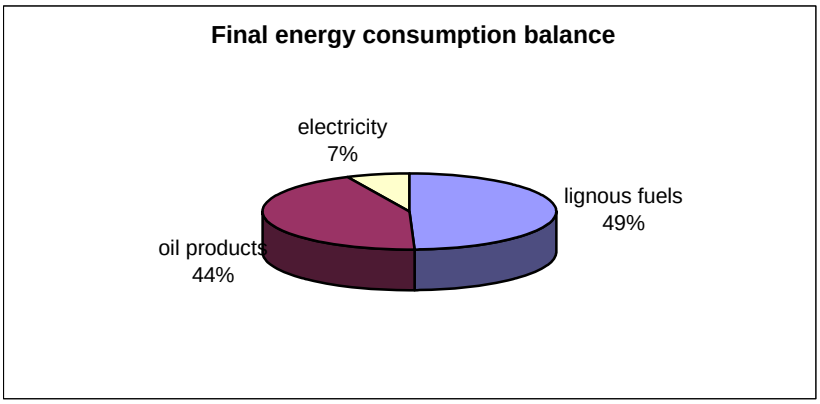
The overall energy situation is heavily characterised by a huge deficit in energy resources. The full extent of the country's energy resources is not known.

A study of the energy profile of Senegal in 1998 showed gross primary consumption at 2.28 million TOE, of which 57% is from biomass, 42% from oil, and les than 1% from natural gas.

Final consumption is 1.5 million TOE, of which 46% is energy wood, 40.6% is oil products, and 6.6% is electricity. The consumption of renewable energy sources as alluded to above is still very neglible in the overall energy balance. Processed energy sources (oil products for electricity generation, charcoal, other

[94] A comprehensive list of the energy profile of the AREED countries is attached in the Appendix

oil products such as engine fuel and butane gas) represent 1.07 million TOE.



Biomass – Like other Sahelian countries, the use of biomass is relatively widespread and its constitute the bulk of the country's domestic energy potential. Lack of accurate data has made both management and planning in the sector difficult. It is estimted that there exist some 12 million hectares of woodland in various formations mainly in the south and south-east of the country, and total annual gross production is estimated at around 10 million $m^{3.}$

The food industry is exploiting by products such as bagasse and peanut husks for heat and electricity generation. There is potential for waste to energy conversion using mainly various types of plant waste such as straw, cotton and rice stems.

The domestic fuel sub-sector is mainly characterised by the dominance of wood energy which accounts for 70% of total energy consumption used mainly for cooking

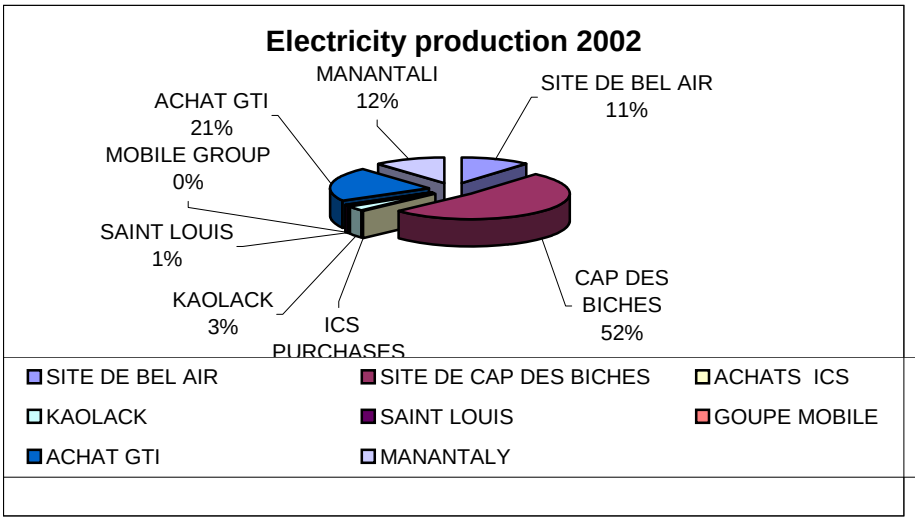
Hydrocarbon – Neglible on-shore natural gas fields have been discovered near Dakar in Diam Nadio and some of this is used for electricity generation. In the region of Thies gas reserves were discovered but this it is not known yet whether the available amount would be sufficient for electricity production. Reserves of heavy oil have been discovered off-shore (about 100 million tons in the Dôme Flore), but exploitation is not viable. Some onshore natural gas fields have also been discovered and exploited near Dakar (Diam Niadio) – these are used to generate electricity, but current stocks remain limited.

In addition, the country has sufficient peat reserves (52 million m^3) in Niayes, but there are no plans for commercial exploitation and environmental impacts are not favourable

Electricity - Electricity production in Senegal 2002 was 1,724,385 MWh, which was broken down as follows:

- 1,177,208 MWh by SENELEC, the country's national electricity company;
- 547,177 MWh by those generating for themselves (ICS, SOCOCIM, SONACOS, Ciments du Sahel, etc.,) and independent producers (GTI).

All of these production values are in MWh



Energy Policy Objectives

The main objectives of the reforms were as follows:

- a thorough restructuring of the energy and forestry sector through institutional framework reform
- privatise the state owned utility – SENELEC in order to optimise distribution, commercialisation and maintenance of the conventional grid
- liberalise the hydro-carbon sub-sector to reduce the dependency on oil importation
- encourage the sustainable and participatory management of traditional substitution energy sources;
- promote energy savings and efficiency

Renewable Energy

With regard to renewable energy, Senegal can boast of four potential sources notably biomass, solar, wind energy and hydropower. The country is well-endowed with biomass reserves and has 6205 thousand hectares of forestry resources of which 5942 comprise of natural forest and 263 thousand of plantations.[95] Agro-industrial by-products (groundnut husks, waste) could be exploited for their energy potential.

Great quantities of peat have been discovered along the northern coastal strip. The hydroelectric potential of the Senegal River will be exploited from 2002 onwards while solar and wind energy is being developed in rural areas for the benefit of rural populations. The potential of solar energy is important in Senegal, with a high daily sunshine average. This potential has been estimated at 5.4 KWh/m2 out of 3000 hours of annual sunshine. Solar energy could thus meet a wide range of needs i.e. the decentralisation of electricity production, refrigeration and water heating systems or drying systems for sea and agricultural products.

Wind is particularly favourable along the coastal strip between Dakar and Saint Louis with an average speed of between 3.7 and 6.1 m/s. In this area the water table is becoming more and more shallow (1 to 10 m). It offers the opportunity to install wind-operated pumps. The setting up of a wind generator is currently under review in co-operation with a private partner.

[95] Adaptation aux effets adverses de la Convention Climat: cas des pays d'Afrique subsahariens: impacts des changements climatiques sur l'accès a l'énergie en milieu rural et stratégies d'adaptation dans les pays de l'UEMOA: Enda, CGSUV, Mars 2004

The hydroelectricity potential of the two large rivers, the Senegal and the Gambia, is estimated at 1000 Mw/year, which is considerable in relation to the energy requirements of neighbouring countries (Mali, Mauritania, Senegal and the Gambia). The development of the Senegal River within the framework of OMVS (Mali, Mauritania and the Gambia) will, in the near future, permit the availability of a hydroelectric supply through the equipment of the Manantali dam, located in Mali. It will provide Senegal with 280 Gw/year of electricity. Surveys carried out within the framework of OMVG (Senegal, The Gambia, Guinea) indicate that Kekreti dam might in the long term produce 48 MW.[96]

Policy and Institutional Reforms

Given the above profile and constraints in the energy sector, the Senegalese government embarked on adopting a series of policies and sectoral reforms to bring about the remedial changes necessary to allow the energy sector to meet growing demand and allow for efficiency. Three main policies were formulated, the RENES programme – sector based project within the framework of the Energy Redployment Programme otherwise known as Redéploiement Energétique du Sénégal (RENES) in 1981 and 1991; the LPDSE in 1997, and the LPDSE in 2003.

Based on the LPDSE 2003, the Senegalese government's policy could be limited to three main dimensions:

- economic dimension: rationalises the conditions of supply, production, distribution and energy consumption, while taking into account long term interests of the country;
- environmental dimension: respects fundamental ecological balances and encourages a rational management of rural spaces within forest exploitation areas for energy;
- social dimension: broadens access to modern forms of energy, a prerequisite for successfully alleviating poverty, improving public health, reducing illiteracy, developing agriculture and promoting women.

The need to widen energy access has triggered the government to establish the Senegalese Agency for Rural Electrification in 1998. The policy declaration also sought to rationalise the distribution and consumption of energy supplies in a sustainable manner and in harmony with the country long-term interests. The government also adopted a deliberate strategy to reinfoce its domestic energy policy in order to reduce environmental pressure and protect diminishing resources.

Further institutional changes were put in place that would create distinctive roles between the government and the private sector and reduce state intervention in the management and commercialisation of the electricity sector. The changes were translated in the restructuring of the former state monopoly SENELEC. Partnerships and consortium were encouraged as a way of exploiting synergies and creating a strong basis for partnership thus the meeting of HQI Elyo and the Senegalese government with the former playing the role of a strategic partner. Although such consortium were shortlived it did not break the government's resolve to pursue its efforts to privatise SENELEC. These efforts included the adoption of a new capital structure in order to establish and clarify the roles and responsibilities of the different stakeholders; the development generation capacity and the reintegration of electric lines that had been removed from public sphere. In 2001, the government launch a second privatisation of SENELEC an invited bidders to tender for control and management of the former state monopoly. The talks were aborted and SENELEC remained a public sector entity. A task force was put in place to re-examine the

[96] Denton, F and Ba, Libasse, Urban Waste Management for Small Scale Energy Production Report, Enda Tiers Monde, July 2001.

new process of privatisation.

Mali

General Profile

The nature of Mali's energy situation is a reflection of the country's endemic poverty and poor economic indicators. For a country of roughly 10, 4 million inhabitants electricity consumption is estimated at 386,5 Gwh[97]. Mali is often quoted as one of the world's poorest countries. In Mali, biomass accounts for 90% of fuel used, and this constitutes a major drain on the country's forestry resources. Like many other Sahelian countries, the energy profile off Mali is characterised by abusive and excessive exploitation of forestry resources. The country is also heavily dependent on petroleum exports and considerable resources are devoted to importing petroleum products. This means that hard-earned resources are often devoted to importing petroleum products thus leaving the balance of payment in a constant state of deficit. In 2000, imports were estimated at 70 billion CFA against a total of 52 billion in 1998. Although the country has considerable renewable energy potential this is largely been left untapped as the associated costs for exploitation of such resources are far too onerous for the government of Mali. Consumption of traditional fuel (charcoal and wood) is estimated at 6 million tons a year. In 2000 consumption of petroleum based products was estimated at 500 000 tons of which 70% was in the transport sector and 15% was geared to industrial purposes.

The specific details of the energy resources could be shown as follows:

Biomass - Biomass remains the principal energy carrier accounting for 90% of household energy. Other conventional energy sources contribute only marginally to the total energy consumption use of Mali

Energy Policy Objectives

The national energy policy of Mali revolves around the following objectives:

- The valorisation of national energy resources i.e. hydropower and renewables
- The protection of forestry resources especially with regard to woodfuel and sustainable use of this resource for the benefit of local communities
- The improvement of purchasing power of petroleum products through a wider access to the international market
- The adoption of 2nd decree in 2002 that will exonerate import taxes on all renewable products for a period of 5 years in order to increase energy access in urban and rural areas.

In addition a multisectoral committee has been established to respond to energy and poverty issues. However, it is worth mentioning that the state utility is privatized at 60% of social capital and the remaining 40% belongs to the state. The state is at liberty to hand over its shares to private entities national or sub-regional and rural electrification and the development of household energy is now under the purview of AMADER since 2003

[97] For more information see report on Energy Profile of Mali – Mali Folk Center Report

Renewable Energy Sources

Hydropower – represents an annual production potential of 1050 GW and 5 000 GWh

Petroleum based sources: Oil sites were only discovered in 2003. Mali has five sedimentary basins with a total of 750.000 Km2 all of which are situated in the Northern part of the country

Solar energy – The country has considerable solar potential with an average sunshine of 6 kWh/m²/j. The average sunshine per day is estimated between 7 to 10 hours.

Wind energy – The North of the country is well endowed in wind potential with a speed of 2, 5 and 5 metres per second. This potential is sufficient for irrigation purposes and water needs of small villages

However, the consumption and use of modern energy sources is fairly limited. The 2003 energy study revealed a per capita consumption estimated at 0.26 tep of all types of energy. Electricity consumption is roughly 13% and reveals large disparities between rural and urban areas. 87% of Malian are deprived of modern forms of energy and have to use traditional energy sources to meet their daily needs. Cooking is one of the major uses for biomass fuel and women are the main users of this type of fuel, which has serious implications for the health of women (both in pollution from cooking with woodfuels and in having to trek ever increasing distances in order to harvest diminishing resources of woodfuel) and for environmental degradation as the forest cover recedes. In spite of the country's huge potential for renewable energy source, the adoption and uptake of these types of technologies have remained low. However, given the degree of energy poverty in Mali, it is clear that renewable energy technologies are needed to meet the domestic, productive and entrepreneurial need of women and men.

Policy and Institutional Reforms

The premise of Mali's energy policy is to work towards a rational use of different types of energy resources (from ligneous to modern) which would enhance human, industrial and economic development. The main rational is to improve living conditions of poorer communities through improved energy access. From an institutional perspective, the energy sector is managed by three main ministerial departments MMEE, MER and MEA, three central technical services DNE, DNGM, DNCN and another institution that is integral to the department of energy CNESOLER and three organisations ONAP, AMARAP, AMADER) and a regulatory independent body called CREE.

In addition three central institutions provide technical expertise. These are mainly: National Department of Energy, National department of Geology and Mines and National department of Natural Conservation including an institution that is attached to the energy department which is the National Centre for Solar and renewable energy (CNESOLER. There are three bodies that have been given special status i.e. the National Office of Petroleum Products (Office National des Produits Pétroliers (ONAP), the The Malian Agency for Radio Protection, (Agence Malienne de Radio Protection - AMARAP) and the Malian Agency for the Development of Household Energy and Rural Electrification (Agence Malienne pour le Développement de l'énergie Domestique et de l'Electrification Rurale – AMADER. In addition there is an autonomous and independent regulatory body - the Regulatory Commission for Electricity and Water (Commission de Régulation de l'Electricité et de l'Eau- CREE). Equally a consultative body called National Commision for Renewable Energy (Commission Nationale des Energies Renouvelables) has been created an comprises key representatives of both the private and public sector. Other institution in

the private sector also play an important role in the management of energy resources as well as key regional bodies such West African Monetary Union (WAEMU)and the Economic Commission for West Africa. The reforms are taken within a context of isolation given the fact that Mali remains an enclave; the existence of enormous hydropower potential which is largely un-exploited, the weakness of the wind potential and inadequate financial mechanisms The reform saw the adoption of a number of decrees all of which are linked to the institutions mentioned above and their potential roles and responsibilities in accessing and widening energy access.

Recently, attention has been given to new institutions such as AMADER. The rationale for the creation of AMADER and the development of different frameworks is linked with the PRSP and other sectoral policies (water, health etc) necessary to put in place an institutional framework that would take in account the twin issue of Energy and Poverty. The Malian government through the creation of AMADER has sought to widen energy access to rural areas and to cater for under served peri-urban and rural areas.

Tanzania

General Energy Profile

In Tanzania, energy is not explicitly mentioned as a priority issue in any of the socio- economic development policy planning initiatives. This could reveal that energy is not seen as a priority sector for pro-poor policies and the alleviation of poverty. However, in 1992 with the publication of the first National Energy Policy the linkage between energy and poverty was explicitly made. Equally, the importance of renewable energy technologies to respond to environmental degradation and rising energy demand is acknowledged within the same document. Together with the Energy Policy, the government of Tanzania prepared the Energy Master Plan, which was an implementation programme for the Energy Policy.

National energy consumption is estimated at 22 million tones of oil equivalent (TOE) per annum. Firewood and charcoal are the main sources of energy in both rural and urban areas. Biomass accounts for about 90% of primary energy supply.

Electricity: Current installed and effective capacity of electricity generation in Tanzania is 863 and 857 MW respectively. It is estimated that only 12% of the Tanzanian population has access to electricity; 10% from the grid and 2% from non-grid. Electrification option in provision of rural energy service is of a priority and can be harnessed from various sources such as, grid extension, isolated micro- and mini-hydro projects, thermal plants, solar PV, wind, etc.

Liquid (Petroleum) Fuels: The country imports all its liquid fuels at an annual order of 1.2 million metric tones costing about 200 million USD. The recently commissioned SONGAS project will partly substitute fuel requirements for generation of electricity at Ubungo thermal power plant.

Natural Gas: Natural gas reserves at Songosongo in Lindi and Mnazi Bay in Mtwara are estimated at 30 and 15 billion cubic meters respectively. Currently the gas principle use is to generate electricity and industrial energy supply at a Cement factory in Dar es Salaam. Sectoral breakdown of liquid consumption

shows that transport consumes 40% followed by industry at 24% and then household at 21%. Agriculture accounts for 11%.

Coal: The country is estimated to have 1,200 million tonnes, known sites are Kiwira and Mchuchuma/Katewaka around Lake Nyasa. Mining is on going at Kiwira where the coal is used to generate 6MW that are fed into the national grid and some is used in cement and textile industries. There have been efforts to promote use of coal briquettes at institutional and household level to substitute charcoal and firewood.

Energy Policy Objectives

The main objectives and general policy baselines of the energy policy of 1992 were:

- liberalisation of the energy market.
- use of fiscal (taxes, duties, levies) and non-fiscal (fees, subsidies, credits, guarantees) interventions to direct market forces and correct market failures.
- energy conservation and efficiency.
- sensitivity to gender needs and linkages with the energy sector.
- stimulation of energy technologies development and transfer.
- efficient use of energy in industry and transport sector.
- generation and distribution of electricity at affordable prices.
- supply of electricity to small townships and industries lying adjacent to and far off the grid system, starting with agro-based industries and using alternative sources.
- development and dissemination of efficient wood fuel conversion and utilisation technologies, coal stoves, kerosene stoves and electric stoves for domestic purposes for rural and urban households.
- exploitation of hydroelectric potential.
- development and utilisation of natural gas and coal resources.
- utilisation of forest and agricultural residues for energy production

However, since 1992 a number of developments within the energy sector have been recorded. The most obvious change has been the introduction of contracted management in the national power utility company (TANESCO), which can be regarded as a drastic departure from the 1992 policy. In addition, improved stoves and modern renewable energy technologies are slowly gaining ground in urban and to a lesser extent in rural Tanzania. Another notable change is the increase use of petroleum based products. The petroleum network comprised of multi-national petroleum companies and petrol stations are mushrooming all across Tanzania. Although these developments underscore the government's effort to extend energy use to other sources outside traditional fuel, they nonetheless accentuate the country's dependence on foreign companies for energy supplies. A number of the objectives mentioned in the 1992 energy policy document were not met. Woodfuel continues to be the main energy carrier in Tanzania with considerable negative implications on forest reserves. The adoption and use of natural gas has not led to full implementation. The liberalisation of the energy market did not result in the development of private sector initiatives. The stated goals of creating an enabling environment to allow non-conventional energy sources such as solar, wind to entrepreneurship development and local organisations and businesses have had mitigated results. The extension of national electricity grid to rural areas and the establishment of decentralised grids have not yielded the desired outcome. The failure of the non-implementation of the 1992 energy policy could be attributed to several factors notably:

- inadequate involvement of key stakeholders at the various levels of implementation during plan formulation and implementation arrangements.
- lack of transparency.
- lack of proper distribution of tasks and responsibilities.
- inadequate use of effective technology assessment tools and poor guidelines for stakeholders.
- inadequate monitoring and evaluation of the effectiveness of fiscal, financial policy instruments
- lack of incentives for innovation and entrepreneurship,
- lack of dynamic technology transfers and information networks.

Renewable Energy Sources

Renewable Energy: These include photovoltaic (PV), wind pumps, biofuels, biomass (biogas and briquettes) and improved wood conversion. There are various initiatives towards popularization and deployment of renewable energy sources in the country.

Institutional and Policy Reforms

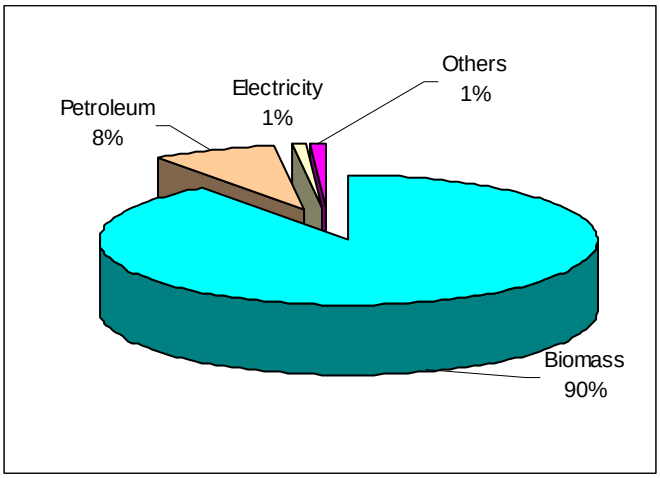
Notwithstanding all of these obstacles, the government is in the process of establishing an appropriate institutional framework for policy implementation, which includes formation of a Rural Energy Agency (REA) with Rural Energy Fund (REF). The bills has been discussed and accepted by the Parliament and preliminary work of preparing terms of references of REA members are on the progress.

The REA will have a major function of promoting new investment in modern energy for rural areas throughout Tanzania. It will work with key service sector institutions, ministries responsible for rural services (e.g. water, health, communication, education, local government, etc.) to promote investment in modern energy and to increase access of rural people for improved energy services. REA and REF will ensure that rural energy services are appropriately provided to the population in the area of renewable energy and energy efficiency and energy conservation.

The Rural Energy Agency (REA) is the responsible institution for rural energy development. The Ministry of Energy and Mines is proposing to attract other institutions, which will actively seek to help rural communities and work with NGOs, businesses, entrepreneurs, municipalities or Community Based Organizations (CBOs) through planning, financing and executing rural energy programmes. It is similarly being proposed to establish REF as a fund that will be the repository of financial resources for communities, companies, local governments and others that are able to invest in provision of modern energy services. The REA is an institution that will facilitate development of rural energy projects. The projects will ultimately be owned and implemented by the private sector, NGOs and community based organisations.

The REF is an instrument that REA will use to stimulate development of rural energy projects. It will provide capital subsidies to bring down the cost of energy services in order to reduce the risk for project developers. The first key role of REA and REF will be to bridge the technical assistance and financing "gaps". REA and REF would be accessible to the rural communities and will link key stakeholders to facilitate development of viable energy projects, bridge finance, technical and capacity gaps in order to stimulate investment.

The National Energy Policy (2003) outlines the need to have reliable and affordable energy supplies, and to promote their use in a rational and sustainable manner in order to support national development goals. The policy aims to promote public-private-partnership approach.



Ghana[98]

General Profile

Energy assessment studies in Ghana have revealed the country's energy potential resources in hydro, solar, wind and biomass. Like most other countries in Africa, biomass remains the main energy carrier meeting the energy needs of the wider population in terms of woodfuel and charcoal consumption. Forestry resources comprise of both open savannah and high forest zones. It is estimated that the savannah zone covers a total area of 9.6 million hectares of which 2.9 million hectares is bush fallow. [99] The remainder is degraded savannah. It is believed that the closed forest zone covers a little more than a third of the country's total land area with a size of about 8.2 million ha, 20% of which is demarcated either as forest reserves or fuelwood plantations. [100] Wood processing firms is producing substantial amounts of sawdust estimated to be about 200,000m^3 solid wood equivalent annually.[101]. In spite of these amounts less than one tenth of this waste is used although it is believed that that current production of sawdust is enough to support briquette production or co -generation plant in Ghana.

Petroleum

Exploration activities have been underway since the late 1800s revealing marginal deposits of oil and gas. The country is reliant on imports for its hydrocarbon needs. Deep water exploration has revealed the presence of source rocks, petroleum generation and migration in the deepwater areas of Ghana. It is believed that Ghana's primary energy resources are sufficient to meet its energy needs provided these are properly and adequately harnessed.

The country has made a lot of progress in widening energy access. National access to electricity has increased from 29% in 1992 to 49% in 2003.[102] Over the same period access to electricity in rural areas tripled from 8% to 24 while urban access jumped from 68% to 79%. Figure 3 further reveals that rural electrification more than doubled between 1999 and 2003 with only a slight change (2%) being recorded with regards to urban electrification.

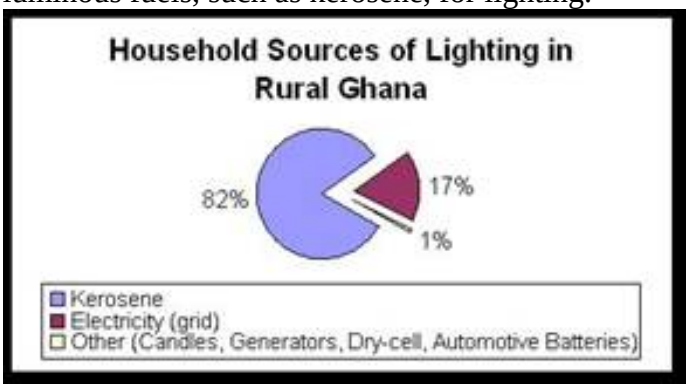
It is estimated that national access to electricity is about 50% with over 80% of electricity being consumed in the cities and urban towns. It is further estimated that 77% of urban households have access to electricity compared to only 17% in the rural areas. The main gap is evidently between urban and rural

[98] This section draws heavily from the Final Draft Report on Poverty and Social Impact Assessment (PSIA):Energy Sector Reform-Electricity Tariff, Kite and Ramboll, April 2004
[99] Ibid
[100] See Final draft report on Poverty and Social Impact Assessment, op.cit.,
[101] Ibid.
[102] Currently, national access is pegged at a little of 50% and this is expected to rise to 70% in four years time.

areas, the latter exhibiting a much lower degree of electrification.

Ghana's electricity is mainly produced from hydro sources and households consume only 10 percent[103] of all electricity generated in the country. Electricity consumption per capita in 2001 was estimated to be 404kWh. Commercial energy consumption per capital 2000 was also estimated to be 120 kg of oil equivalent[104].

Electricity consumption per capita ranges from as high as 683 kWh in the Greater Accra region to a low of 36 kWh in the Upper West Region. Access to electricity is higher in the southern part of the country than in the north. The vast majority of Ghana's rural population depends on inefficient and relatively low luminous fuels, such as kerosene, for lighting.



The source of fuel generally in the country and in particular the rural communities had been predominantly wood base (84%); thus speeding up the rate of depletion of the country's forest reserves. This state of affairs has therefore become a matter of grave national concern. Undoubtedly, the Ghanaian government remains concern as a result of alarming rates of deforestation. Indeed the need to move away from traditional fuels to modern forms of energy has been a principal component of Ghana's energy policy.

Energy Policy Objectives

In order to address development priorities, the government of Ghana hopes to develop and implant its energy sector through the following

- Consolidate and improve existing Energy Supply System
- Increase Access to High quality Energy Services
- Secure future Energy Supplies
- Stimulate Economic Development
- Minimize environmental impacts of energy supply and consumption
- Strengthen institutional and human resource capacity and R & D in energy development
- Special Concerns (Renewable Energy Technologies and energy sector reforms

Renewable Energy Sources

Solar

Ghana's geographical location makes it well-endowed with abundant sunshine with considerable potential

[103] Millennium Development Goals Needs Assessments for Ghana, Tanzania, and Uganda background paper,
[104] Sources: UN Human Development Report, 2004: http:// hdr. undp. org/ statistics/ data/;
United Nations Common Database: http:// unstats. un. org/ unsd/ cdb/ cdb_ help/ cdb_ quick_ start. asp

to exploit solar resources. The country is located between lat. 4^o and 12^o N and longitude 30^o W and 1^o E and receives daily solar irradiation of about 5kWh[105] per metre square per day and a corresponding annual sunshine duration hours of 1800-3000 hours.

Wind

Perception of wind potential in many African countries has been generally tempered with the reality of low wind speeds. However, in Ghana, assessment have shown that the wind regime is mainly located along the coast with annual average wind speeds ranging from 6-6.3 metre wind mast heights at 1.225 kilogrammes per cubic metres (kg/m^3). At these wind speeds, the wind energy potential of the country has been estimated to be ranging from 300-400 MW with corresponding annual generation of between 500-600GWh Ghana with wind speeds adequate for power generation. Such studies have brought about renewed hopes in the energy sector especially those keen to develop the technology. However, discovery has not yet translated into actual wind farm/s to date.

Hydro

Ghana's electricity is essentially powered by two hydro dams at Akosombo and Kpong, which have a combined installed capacity of 1,072 MW. In addition, it is estimated that the country has an additional potential of 2,000 MW of hydropower.[106] About 1,205 MW of this total is expected to be produced from proven large hydro sources while the rest will come from medium to small hydro plants.

Institutional and Policy Reforms

Institutional reforms were taken to enhance the energy sector. The management of the energy sector is under the purview of ix institutions in the electricity sub-sector. They are mainly the Ministry of Energy (MOE), Energy Commission (EC), Public Utility Regulatory Commission (PURC), Volta River Authority (VRA), Electricity Company of Ghana Limited (ECG) and the Northern Electricity Department (NED), a subsidiary of the VRA.

Ghana's Energy board was created in the mid-1980s. The main rationale for its creation was linked to energy planning and policy development. In 2000, a policy document set the tone for Ghana energy policy orientation – this document was called "Poverty Alleviation and Economic Growth. [107]. Ghana's energy policies are largely influenced by the rationale to develop and energy economy through much improved energy access to urban and rural areas through the provision of reliable, affordable and efficient energy services. These services were extended to households, industries, businesses and the transport sector as well as making significant contribution to the export earnings of the country.

Similar to numerous countries in sub-Saharan Africa, structural adjustment and the Economic Recovery Programmes reforms were no without implications for the energy sector. Consequently, the energy sector and a number of priority areas were singled out and given more focus. These priority areas were mainly: LPG promotion, the development of renewable energy technologies, petroleum sector, electricity sector, and energy efficiency and conservation. However, this action plan which was partly in the 1990s consequently failed due to the collapse of the Energy Board in 1991. Nonetheless, the sector in the course of the past two decades has gradually developed both in terms of modern forms of energy (renewable) and traditional (ligneous) sources of energy. The development of the sector is also largely due to foreign largesse particularly DANIDA

[105] Strategic National Energy Plan 2005-2020, EC
[106] Ibid.
[107] Ibid.

With regard to the LPG programme, pundits agree that it was relatively successful as it meant an annual consumption of LPG increasing from 5,267 MT (metric tonnes) in 1989 to 50,261 MT in 2000. Similar to the Senegalese story of LPG introduction the challenge to take the product to the rural areas was fairly limited as promotion and uptake were reduced to the capital city of Accra. Given the high consumption of charcoal in urban areas this concentration in the urban areas is seen as a positive step to stem the rates of deforestation and thus reduce demand for charcoal and woodfuel. In 2004, the Government with financial support from the United Nations Development Programme (UNDP) under its Rural LPG Challenge programme re-launched the LPG campaign programme. The current focus of the campaign is the Northern region of Ghana.

Other areas that are worthy of mention are the power sector. Reform in this area were mainly to achieve the following objectives:

- open access – i.e. through the unbundling of the transmission and generation functions of VRA, create an enabling environment to support the participation of Independent Power Producers and Bulk Supply Customers in a competitive market.
- contestable market – provide relevant facilities and motivate their provision through competitive bidding.

independent regulators – they were responsible for Licensing and Competition & Operational rules to assure participants of impartiality and non-interference by Government in the regulation of the commercial and business environment of the sector.
transparency in rate-setting – provision of a structured formulation for price setting which would ensure predictability of rates and provide some assurance to market participants.

Achievements could be detailed as follows:

- The enactment of the Public Utilities Regulatory Commission (PURC) Act of 1997 (Act 538) and Energy Commission (EC) Act of 1997 (Act 541)

- The conversion of Electricity Corporation of Ghana into a limited liability company, Electricity Company of Ghana Limited under the Statutory Corporations (Conversions to Companies) Act of 1993

- Thermal power generation has been opened for private sector participation and competition

- Electricity Transmission Utility (ETU) registered to take over the transmission assets of VRA.

The pace of reforms has been very slow since its inception in 1994. Preparatory studies have been conducted thus including the establishment of a rate setting framework to ensure periodical revision of tariffs to economic levels (by the PURC); the drafting of regulations and establishment of monitoring framework (by the EC); and the financial and organizational restructuring of utility business operations into Strategic Business Units (SBUs) to ensure transparency in accounting and their operations[108].

Other initiative such as the National Electrification Scheme has been underway since 1989. The aim is total coverage over a 30 years period from 1990-2020. Government main aspirations was to raise the standard of living of the poor through the provision of electricity and stimulate economic activities in rural areas. Funding of the scheme was mainly by grants, concessionary credit, and National Electrification

[108] Restructuring & Privatisation of the Power Sector in Ghana, IFC, Accra, Ghana, July 1999.

Fund levy and from the government. Under the programme, about 4221 communities were identified as having populations of 500 or more, and hence qualified to be supplied with electricity.

Another component of the NES is the Self-Help Electrification Programme (SHEP). SHEP is a community driven participatory project for rural electrification. The SHEP was introduced to assist communities that are within 20km of an existing 33kV or 11KV network and have procured low voltage poles to get power ahead of their respective scheduled dates of connection under the NES. SHEP started in 1990 and is presently in its fourth phase (SHEP 4). Communities that are not able to connect to grid electricity have been identified in order to initiate through donor assistance solar photovoltaic programmes and some schools are also part of the intended beneficiaries.

Projects such as those initiated by the Ministry of Energy and Spanish Off-grid Solar PV Rural Electrification Project started in 1998 and ended in 2000. The Government of Ghana in 1999 started the Renewable Energy Services Programme (RESPRO. The main aim was to extend power supply to rural communities where grid extension is totally uneconomical. This is done by tapping solar energy potential using photovoltaic (PV) technology. The aim of the RESPRO programme is to ensure spread of the renewable energy technologies to remote areas.

RESPRO supplies many kinds of energy systems that address the energy needs in the rural areas: solar dryers, PV lighting systems (for lighting and cooking in homes and primary schools), solar health clinic systems for vaccine refrigeration. RESPRO has supported government's rural electrification process by providing solar home appliances to over 2500 households not to mention provision of solar streetlight, solar powered water pumps, and refrigeration for clinics as well school lighting systems.

Zambia[109]

General Energy Profile

Energy is perceived as a key input in the socio-economic development of Zambia especially in key sectors such as manufacturing, tourism and agriculture. Current energy price hikes at the international markets has huge implications for energy resources in Zambia especially since energy consumption is likely to rise. The energy situation in Zambia is marked by a number of trends i.e. the sharp increase of petroleum products, frequent power failure coupled with an ailing mining industry. Like many African countries woodfuel is by far the main energy resource accounting for 80% of total energy consumption. However, the main determinants of growth in the consumption of petroleum are the mining and transport sectors.

The table below shows results and projections of the 2004 Zambia CGE Model regarding the Annual Growth Rates.

Table 6: Annual Growth Rates by Sector under the NDP Growth Scenario 2005 - 2011

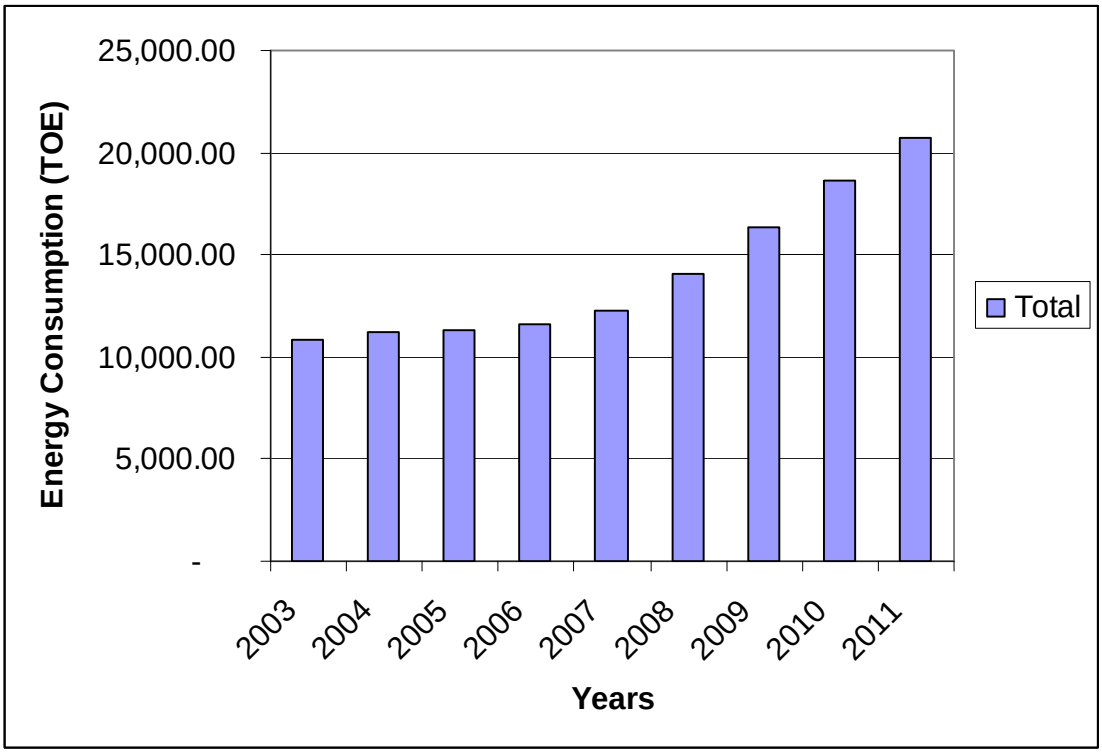
	Share*	Annual growth rate (constant 2004 prices)							Average
	(2004)	2005	2006	2007	2008	2009	2010	2011	(06-11)
GDP (factor cost)	100.0	5.2	5.9	7.0	7.4	7.5	7.6	7.3	7.1

[109] Information drawn from Draft Chapter on Energy for the Fifth National Development Pan, Prepared by Energy Advisory Group, October 2005.

Agriculture	21.4	2.8	4.5	7.1	7.5	7.6	8.9	9.0	7.5
Staple crops	11.9	2.5	4.0	6.0	6.3	6.3	7.1	6.9	6.1
Cash crops	1.7	4.0	6.0	12.3	13.5	14.4	18.1	19.3	13.9
Other agriculture	7.8	3.0	5.0	7.7	7.9	7.9	9.1	9.0	7.8
Mining	4.8	9.9	17.9	14.8	9.5	7.2	6.2	5.8	10.2
Manufacturing	14.8	4.0	5.0	8.1	9.1	9.5	9.9	9.5	8.5
Food processing	8.9	4.0	5.0	9.4	10.4	10.7	11.0	10.1	9.4
Energy	3.7	1.1	2.3	5.7	14.5	16.6	13.8	11.2	10.7
Construction	12.8	10.0	9.0	7.9	7.9	7.9	7.2	6.4	7.7
Trade and transport	22.5	5.2	5.5	6.5	6.9	7.3	7.5	7.4	6.9
Tourism	1.0	8.0	7.0	5.7	7.3	9.0	8.6	8.4	7.7
Other services	24.8	4.3	3.9	4.2	4.5	4.7	4.8	4.6	4.5
NDP priority sectors**	30.3	3.2	4.7	7.8	8.4	8.6	9.6	9.4	8.1

Source: Results from the 2004 Zambia CGE model and projections from Ministry of Finance and National Planning.
* Contribution to GDP in 2004 measured in 2004 prices.
** NDP priority sectors include staples crops, cash crops, other agriculture, and food processing

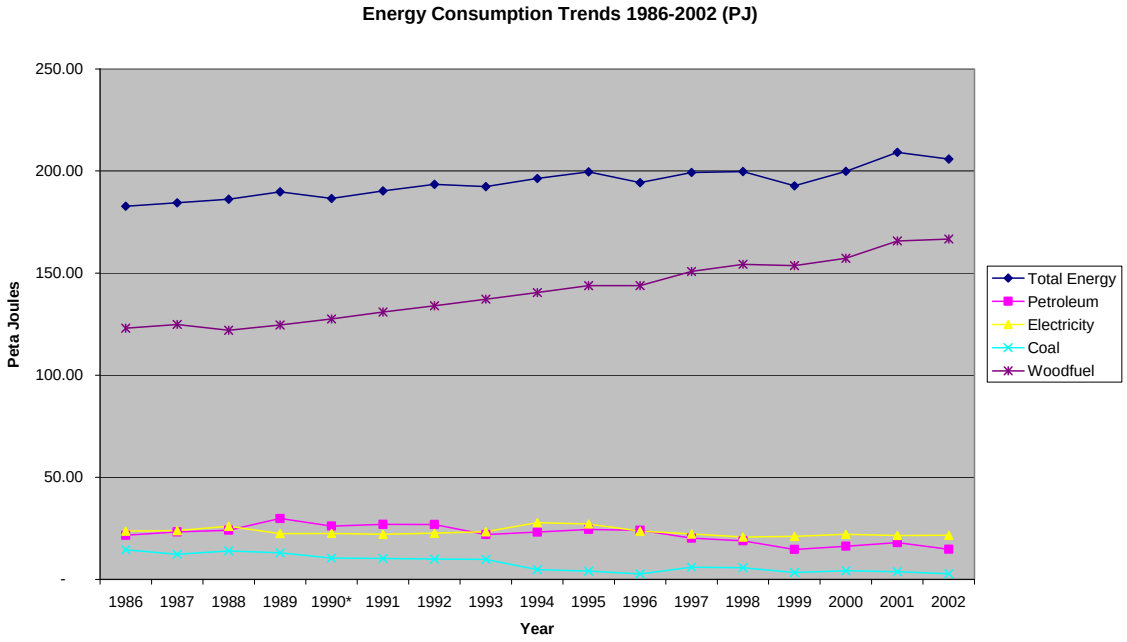
The figure below shows the projected energy requirements during the period 2006 to 2011:



As shown by Figure 1 below, the overall consumption of commercial energy (Petroleum, Electricity, and

Coal) has been declining over time accounting for 32% of national total energy consumption in 1990 while in 2001 it had fallen to 21%. This was mainly due to the decline of the copper dependent economy in the 1980s and 1990s.

Fig 1. Energy Consumption Trends 1986-2002



The weak economic base has meant that the country is unable to maintain, rehabilitate and improve its energy infrastructure. In addition, the institutional structure that controlled and managed the sector was itself in dire need of reform. Thus, in 1994 the Zambian Government adopted the National Energy Policy (NEP) which was mainly to provide direction and focus to the energy sector.

Zambia relies heavily on petroleum products which are all imported. However, the country is well-endowed with a range of indigenous energy sources particularly woodlands and forests for wood fuel, hydropower, coal, and new and renewable sources of energy. Total annual energy consumption of all energy sources is in the range of 200 giga joules. Woodfuel remains the commonest form of energy resource especially for households whilst industries and mines tend to use mainly coal, electricity and petroleum products. Natural gas is growing in significance with the increasing developments in fields off Mozambique, Namibia, South Africa and Tanzania are developed. Natural gas development is still in its infancy in Zambia but there are several projects that have been earmarked for further expansion. With regard to electricity consumption, an estimated 20 per cent of all households in the country have access to grid electricity; the figure for rural households is only 2%, compared to 48% for urban households (Department of Energy). These statistics indicate that Rural Electrification needs to be accelerated. A Rural Electrification Authority has been established for this purpose.

Liberalisation of the industry has also led to the emerging of new players such as Copperbelt Energy Company, and Lunsenfwa Hydropower Company. ZESCO, however, remains a vertically integrated power utility and dominant player in the electricity industry. This is bound to affect competition in the industry. Further reform of the electricity industry, particularly attracting other players in the sector is a major challenge. The Southern African Power Pool connecting the country to the Sub-region network

presents opportunities not only for exports but wheeling power from surplus areas to power deficit areas in the sub-region. In this regard, Zambia is developing and exploiting its strategic location in the sub-region through interconnections with neighbouring countries by being part of the Southern African Power Pool. It has been estimated that at the current growth of power consumption the sub region may experience a power deficit by 2007.

The NEP aim in the Coal sub-sector was to promote exploration of coal, the use of coal for industrial applications and household purposes. However, in recent years, the contribution of coal to total energy has been declining over time. Production and technical difficulties at Maamba Collieries Limited (MCL) have constrained the growth of the sub-sector. During the plan implementation period Government is expected to complete the privatization of Maamba Collieries Limited.

Energy Policy Objectives

- To increase supply of and access to modern energy for sustained economic growth and poverty reduction
- To promote efficient energy use practices in all sectors of the economy
- To substitute, wherever possible, local energy resources for imported ones
- To popularise energy management
- To promote energy efficiency labelling and benchmarking
- To encourage the use of energy efficient equipment

Renewable Sources of Energy.

Although Zambia is well endowed in renewable such as solar and mini hydro potential, policies on pricing would need to change considerable to encourage the uptake of such modern energy resources

The main objectives for Renewable Sources of Energy, under the NEP, included the promotion of Renewable Energy Technologies and their wider application. While the contribution of renewables has been relatively small it is increasing. More needs to be done to reduce the cost of renewable technologies in order to increase access. In addition, increased private sector investment in the field of renewables is expected to play an important role in the provision of energy for poverty reduction

The institutional and legal framework provided by the MEWD and other line Ministries, the regulatory authorities and various legislation on energy and related sectors have undergone some review, however, much remains to be done with regard to monitoring and evaluation of sector performance to ensure effective and efficient delivery of the energy. There are also issues of weak capacity in the energy sector at all levels especially in the areas of energy sector analysis and planning, energy project appraisal, energy data and information gathering, preparation and dissemination. Skills in these areas remain largely weak.

Policy and Institutional reforms

Co-ordination seems to be lacking in the energy sector. This is mainly due to the absence of a relevant co-ordination framework necessary to keep partners and stakeholders up to speed with information and the sharing of experiences. Planning tends to take place at central level only. Thus, there is poor appreciation of the energy issues at grassroots level. The PSRP and TNDP coverage of regional energy largely underplayed the role of energy in the provinces and districts development plans. The FNDP will seek to review and strengthen existing institutions, and legislation framework through the review of the

institutional capacity and implementation of appropriate reforms in the energy sector.

Currently, the National Energy Policy (NEP) adopted in 1994 which is mainly based on the overall economic policy of liberalisation and increased private sector participation in the economy, is under review. However, future reforms need to focus on making improvement in the energy to allow it to perform better than in the past. In addition legislation, such as the Electricity Act, the Energy Regulation Act, and the Petroleum Act, to operationalise the liberalisation of the energy sector has been enacted. The review of the legislation and institutional framework is a continuous exercise as it main aim is to optimise the performance of the energy sector

In addition, numerous institutional changes have been made in order to align the energy sector to the new economic philosophy. Also, in order to streamline the sector the National Energy Council Act was repealed and the Council dissolved. In its place the Energy Regulation Act 1995 established the Energy Regulation Board whose main functions include receiving complaints from consumers;, monitoring the efficiency and performance of energy undertakings, issuing of licences to energy undertakings and monitoring levels and structures in the energy sector to promote competition and ease of entry.

The government is also looking to open the market in its efforts towards liberalization. Thus, electricity legislation which protected monopolies such as ZESCO, has been modified in order to open up the industry to private sector participation. The Electricity Council functions were fused in those of the ERB. The Electricity Act 1995 opened up of the sector has seen the emerging of Copperbelt Power Company (CEC), Lunsemfwa Hydropower, and also a number of ESCOs dealing in solar energy. A fundamental reform is the concept of common carrier provision which opens up the power network to industry players. In addition, the Zambian government has sought to commercialise ZESCO instead of an all-out privatisation due to its strategic nature. This means that that ZESCO must operate on the basis of sound business principles. Ever since ZESCO was incorporated in 1969 the power utility has maintained a vertically integrated structure. Government has expressed an urgent need to improve the efficiency and financial performance of the company. In this regard there is need to review the current structure and determine the reform options. In 2004 Government allowed ZESCO to acquire, through merger, the Kariba North Bank Corporation (KNBC). The benefits of this merger are yet to be fully analysed.

In order to promote private sector investment in the power sector Government approved the Framework and Package of Incentives for Hydropower Generation and Transmission Development (FPI) in 1998. This resulted in the formation of the Office for Promoting Private Power Investment (OPPPI) which started operating in October 1999 as a 'One Stop Window' for investors. The OPPPI main function is to solicit and evaluate proposals, articulate and promote the FPI and to negotiate and process the award of contracts and finalise the Implementation and Power Purchase Agreements (IA & PPA) and Transmission Service Agreements (TSA).

Furthermore, in its effort to accelerate the pace of rural electrification, the Government through the enactment of the Rural Electrification Act (No 20 of 2003) has established the Rural Electrification Authority. This authority would be responsible for implementation as well as mobilization of funds from all possible sources to accelerate the rural electrification programme in the country.

The petroleum sub sector has seen two amendments so far in order to take into account changes in the economy. the liberalization of the energy sector has brought about the emergence of a number of Oil Marketing Companies. Nonetheless, there is room for for further reform particularly with regard to procurement framework for oil in order to bring about more efficiency and ensure security of supply.

Consequently, this would mean that the Petroleum Act would need to be reappraised and the Petroleum Production and Exploration Act amended or repealed.

Status of AREED Enterprises in Mali[110]

The first investment of AREED was made in Mali in 2001. In 2005, AREED has 3 enterprises in Mali. These enterprises include:

USISS : Solar Drying of Foodstuffs- In the first quarter of 2005 the turnover of this enterprise was 16 million FCFA. The enterprise produced 500 kg of dried onions, 22 tons of dried mangoes, and 10 tons of meat.

The market of the enterprise has grown substantially. Loan repayment records are also good. Next year, the loan will be totally repaid and the entrepreneur is willing to get another loan from AREED to establish a drying unit in the zone of Niono for onions and in the Western part of Mali (Mande) for the drying of mangoes. The new manager of the enterprise Mr. Doumbia is willing to export its products to regional market like Senegal and Ivory Coast.

SODIGAZ: Butane gas distribution- Since 2003, SODIGAZ is repaying normally the loans contracted from AREED. The financial state of the enterprise is good in spite of the arrival of two operators in the distribution of butane gas.

During the first quarter of 2005, the enterprise realised 380 million FCFA as turnover, and produce 670 tons of gas, and with the selling of 10 500 bottles of gas butane subsidised by AMADER.

In 2005, SODIGAZ obtained from E+Co a second loan dispersed

Drawn from AREED Anuual Report 2005

in two tranches to purchase 25 000 bottles of butane gas to supply rural populations.

ECO'HOME: Commercialisation of compacts fluorescents products

With AREED support, the enterprise through radio and newspapers sensitisation is raising awareness of the population on the benefits of using energy saving bulbs.

According to the promoter of ECO'HOME, Mr. Alassane Traoré, the customers are very excited now. The turn-over of the enterprise in the first quarter of 2005 was 4 millions FCFA, with 1395 units sold. With AREED financial assistance, ECO'Home imported 8 533 energy efficient bulbs. The future is bright for this enterprise. It is expected that the turnover will grow by 15% in 2006. Actually the enterprise has a substantial stock to satisfy the demand. The picture above shows the commercial agent of Eco'Home in demonstration of its products

4.3 Status of AREED Enterprises in Senegal

Four enterprise have benefited from the AREED aid during the past years. These enterprises have been able to launch their activities and have attained results:

GIE FOYER AMELIORES (GIE FA) – AREED aid enable this enterprise to increase its activities and to display its products to local and sub regional trade fairs.
The production of the enterprise has nearly doubled and one can note the installation of eight (08) electrical shops in the regions of Tamba, Thies, Kaolack, Mboro, Nguekhokh, Saint Louis, Touba, Dourbel in collaboration with women organisations and other development partners.

In the short term, the GIE FA enterprise intends to extend its activities to other regions and even beyond Senegal.

MONTAGRISOL –In collaboration with CMR Alternatives, a Spanish enterprise, Montagrisol produces solar mill for grinding in rural villages of Senegal. These mills are operated by Senegalese youths in the region of Louga (Sahel).

A total amount of USD 117 551 was invested by AREED in 2004 in this enterprise.

When the enterprise was signing the technology and equipment transfer agreement with its technical partner, there were difficulties over the duration of the project.

PROSOLEIL- This is solar water manufacturing enterprise that is located in Saint Louis in Senegal.

PROSOLEIL started its activities in 2005 due to technical and administrative problems. The enterprise has been able to sell few units. Marketing and propection continue in order to acquire new markets.
The loan provide by AREED was in the tune of USD 24 063

Vent et Eau pour la Vie (VEV)- This enterprise is supplying potable water to rural populations through wind pumping system. This enterprise is currently the main actor in the maintenance and installation of Wind pumps in the rural areas of Thies, Louga, Diourbel and other surrounding villages

The enterprise also takes part in the sensitization of the population on the management of the pumps and access to potable water. According to the annual activity report, VEV repaired many wind systems and installed new wind pumps. Dfficulties faced by the enterprise include the inability of some rural communities to find a good management system. Some wind pumps are not functioning because of lack of fund to pay the repair expenses.

STATUS OF AREED ENTERPRISES IN TANZANIA

TaTEDO is a sustainable energy development national NGO based in Dar es Salaam, Tanzania with activities in several districts and more than 10 years experience, actively involved in sustainable energy development projects and programmes in rural areas. The organisation is non-profit sharing organisation for spearheading development of sustainable energy technologies and services while conserving the environment.

Cooking on improved Okoa fire wood

Vision is to become a best practice sustainable energy organisation committed to the achievement of poverty free, environmentally secure, economically and socially well off communities with reliable access to sustainable modern energy services.

Mission is to develop and promote increased access to modern sustainable energy technologies and services through programmes development and implementation to provide relevant information, knowledge, skills, develop strategic partnership and influence policies towards socio-economic development of communities, poverty reduction and environmental conservation

Goals are to:

- Improve quality of life of Tanzanians by contributing to availability of improved and sustainable energy services, employment and income generating opportunities, which are essential for poverty reduction,
- Reduce environmental degradation resulting from increased use of wood and fossil fuels,
- Assist the country to reduce dependence on imported energy.

AREED Tanzania

TaTEDO is the Tanzanian focal institution for the African Rural Energy Enterprise Development (AREED) programme .TaTEDO has been associated with the implementation of AREED since its inception in the year 2002. During this period, the Tanzania AREED pipeline development has shown remarkable improvement in its implementation and this has been reflected in the increasing number of enquiries from clean energy entrepreneurs, business proposals received and number of investments approved and invested.

AREED Tanzania pipeline has of April 2006 three (3) approved and invested businesses; two approved businesses – funds disbursement in the final stages and nine (9) business proposals at various stages of development. Intro sheets of three (3) of the proposals in the pipeline have been approved for further support to writing investment recommendations (Fact Sheets) whereas the remaining six (6) are receiving enterprise development services. These are:

1. **Biomass Energy (T) Limited (BETL)**

Making cement is an energy intensive business where energy is often supplied by fossil fuels. In Tanzania, however, the Tanga Cement Company Limited (TCCL) wanted to source some of their energy from biomass and turned to Peter Gathercole, a mechanical engineer with 24 years experience, who is also the founder and Managing Director of Biomass Energy Tanzania Limited (BETL). BETL is an energy service company based at Dar es Salaam, which began operations on receipt of a US$ 50,000 AREED investment

in June 2003. The company was established primarily to develop the business of turning what is normally treated as waste product with no value into a marketable product with value. The company aims at producing heat energy from solid biomass that is environmentally friendly to displace fossil fuels. It developed a concept of providing industrial clients with alternative fuel source from the biomass. Since then, the company has been sourcing and supplying a range of agricultural and other biomass wastes, for use as fuel.

Mr. Gathercole believed he could profit from a Tanzania law that demands production industries remove biomass waste, which is not only expensive but also a potential environmental hazard. The Tanga Cement Company Limited (TCCL) on the other hand, chose to follow international trends by using biomass waste for their thermal needs in the cement production process. Such policy led them to commission the engineering department to design and build a suitable facility at the plant so that large volumes of biomass could be utilized. The policy also result into cost savings to TCCL and reduced greenhouse gas emissions, while giving a 40% gross profit margin to BETL itself .

Mr. Gathercole approached AREED with a simple business model to coordinate the sourcing, transportation and supply of suitable raw biomass materials from the rural communities in Tanga to supply TCCL. Although TCCL needs biomass for its operations, it is the *convenience* associated with having the appropriate biomass sourced, transported and delivered to the client that gives BETL an innovative and competitive dimension. The AREED partnership provided BETL with business planning support and assisted the entrepreneur to fill in certain gaps in the operational structure of the business. The environmental benefits of this enterprise, including decreased greenhouse gas emissions, are a big win for AREED. At the same time, replacing fossil fuels with unused renewable biomass fuel reduces costs. Tanga Cement Company Ltd (TCCL) is currently displacing up to 15% of the heavy fuel oil otherwise used to provide heat.

Similar opportunities exist in Tanzania, and the business model and knowledge can be replicated in other AREED countries such as Ghana where large-scale deposits of biomass (from sawmills) are currently unused. BETL has signed a new two-year contract, increasing volumes from 500 tonnes per month (Original contract) to 1200 tonnes per month. BETL has also begun a small pilot project in Kigamboni suburb in Dar es Salaam with a group of women to begin carbonizing coconut husks. BETL will buy the carbon from them as a source of raw material for briquettes. BETL will expand on this and ensure the source of raw materials is only taken from village waste on not indigenous trees.

The entrepreneur has also established subsidiary company in the name East African Briquette Company, which is manufacturing briquettes using charcoal dust, wastes from charcoal selling centres around towns and cities. It is already operational

Photos: An example of AREED investment in Tanzania showing biomass conveyer leading to back end of Tanga Cement Company Limited (TCCL) kiln
Enterprise particulars:
Enterprise Name: Biomass Energy Tanzania Limited (BETL)
Amount Invested: US$ 50,000 debt finance
Business Activity: Alternative fuel retail/fuel switching

Date Disbursed: 30th July 2003
Loan Terms: Interest rate 10.0%, loan term 4 year term

Coconut husks floating out to the sea

Charcoal vendors wate dust on the street

2. Mona Mwanza Electrical and Electronics –

Mona Mwanza Electronics and Electrical (MMEE) was established in 1998 by entrepreneur Mohammedrafik Parpia and his family. Initially MMEE focused entirely on electrical appliances until Mr. Parpia recognized the large potential for solar generated electricity in a market completely underserved by the national grid. Mr. Parpia undertook training in the technology and with AREED assistance started to import, sell and install solar equipment. The AREED assistance was in the form of a US$50,000 loan in 2001 and within a year the loan was repaid. A second stage loan worth USD 100,000 has been approved and invested by AREED for the expansion of the business of this enterprise. Today the entrepreneur has managed to establish a separate sister company of Mona in the name of Zara Solar dealing purely on solar equipments and accessories

3. SEECO

SEECO is a company owned by TaTEDO. It is a subsidiary non- profit sharing company, an autonomous entity involved in commercialization of proven renewable energy technologies and services on commercial basis. The goal of the company is to produce and sell in large scale, improved energy products including charcoal stoves, charcoal ovens, woodstoves, bio waste stoves, cake pan sets, and baking pans. The company is of its own kind in Tanzania in the area of commercialization of improved and efficient charcoal stoves and ovens in Tanzania. AREED approved and invested USD 54,324 in this business.

4. FADECO

FADECO Trading Company Limited (FTC) is a 4-year old solar fruit drying company based in Tanzania managed by an entrepreneur in the name of Joseph Sekiku, a food technologist by profession. The company also constructs solar driers for sale to farmers and other for its own use for food processing. **RIFT VALLEY FOODS** is the brand name for all food products marketed by FADECO Trading Co. Ltd. FADECO has specialized in producing mainly solar dried fruits (Sweet apple Bananas, Pineapples, Mangoes, tomatoes, paw paws

A total of USD 27,000 has been approved for investment in this business. Funds disbursed is in closing stage


Sweet Apple Bananas
Paw paws (papaya)


Sweet whole Bananas


Dried Mangoes



Dried Pineapples

5. RESCO

RESCO's main business activities are importation of solar modules and Balance Of Systems (BOS) and sell them in Tanzania through dealers and individual customers located in different regions of Tanzania. A total of USD 63,240 has been approved for investment in this business. Funds disbursement is at closing stage.

The businesses of which their intro sheets have approved for further assistance to investment are:

a. **FELISA** - FELISA (Ltd) is a new company recently registered in Tanzania. The name is an acronym that stands for 'Farming for Energy, for better Livelihoods in Southern Africa'. As the name indicates, FELISA aims to promote the concept 'Farming for Energy'. Its founders and shareholders are Mr. Stefan De Keyser, Dr. Hamimu Hongo and Mr. Ernest Mwemutsi. The company intends to venture into the production of biodiesel (diesel obtained from vegetable oil) from palm oil, biogas for electricity, cooking or other uses, and compost manure. The company has applied the sum of US$ 300,000 establishing the palm farms to ensure supply of raw material for the biodiesel plant as well as acquiring biodiesel processing machines. Its IS has been approved for further support and Fact writing is on progress.

b. **Biomass Briquette Manufacturing Company (BBMC) –** BBMC applying for AREED financial assistance amounting to$ 70,000 to establish a briquette manufacturing company using sawdust as raw material in Mufundi District, Southern Highlands of Tanzania, IS has been approved

Other proposals in the pipeline include:

i. **Kilimanjaro Industrial Development Trust (KIDT) –** KIDT is applying AREED financial assistance amounting to $ 120,000 to expand its briquette factory, run it as independent entity and as working capital. EDS is on progress.

ii. **Gajosa Farm:** This is a business intending to establish a plant to manufacture palletized briquettes using rice husks in Kilombero district ~ 300kms from Dar es Salaam. The area is very famous for rice production, producing rice husks amounting to approximately 200,000 – 300,000 tons per annum. The proposed business targeted mud brick making costumers (for burning bricks), institutions for substituting charcoal and firewood in the first instance. The entrepreneur Ibrahim Nzowa is applying for $ 85,000 from AREED for procuring pelletizing plant (500kg/hr capacity) valued at $ 41,255 and working capital to initiate this business. Preliminary assessment has been done and EDS is on progress.

iii. **AOL Technology Limited and Intraprofessions East Africa Limited**
These are two businesses both of solar PV technology marketing, installation and servicing from Mwanza region, a region in which UNDP/GEF/Government of Tanzania is implementing a joint project on Transformation of Rural PV Market in Tanzania. The project aimed at removal of barriers to secure PV market penetration in rural areas of Tanzania. The two businesses are applying for AREED financial assistance amounting to $240,000 and $ 79,000 respectively as working capital and to expand their businesses. A preliminary assessment is completed and EDS provision is progress.

iv. **Fine Wood Ltd –** manufacture pellets from saw dust, applying for US$ 87,000 AREED support to purchase pelletising briquette machine and working capital. Preliminary assessment is on progress

v. **Jofan (T) Compant Limited** - manufacture pellets from coffee husks, applying for US$ 40,105 AREED support to purchase pelletising briquette machine. Preliminary assessment is on progress

vi. **Kiure Engineering Company Limited** – manufacture and sale of charcoal briquette using biomass – saw dust applying AREED support amounting to US$ 23,050 to increase working capital Preliminary assessment is on progress

vii. **Universal Com Limited** – Intend to establish Wind Harvesters production factory to supplement insufficient electric supply in Tanzania, applying AREED assistance amounting to US$ 500,000. Preliminary assessment is on progress

List of Interviewees

Institutions	Contact Person
Mali	
M Magassa	CSLP : Cadre Stratégie de Lutte Contre la Pauvreté
M. Agalassou Alassane	AMADER : Agence Malienne pour l'énergie Domestique et l'Electrification Rurale
M. Diakite	DNE : Direction Nationale de l'Energie
M. Kanouté	Le chef de Cabinet du Ministère de l'Eau et de Energie
M. Kamissoko	CNESOLER (Centre National d'Energie Solaire et Renouvelable)
M. Namory Traore	CNPI (Centre National de la Promotion de l'Investissement
M. Amadou Niogado et M.Sidibe	CCIM (Chambre de Commerce et d'Industrie du Mali)
M.Traore et M. Sissoko	DNI (Direction Nationale de l'Industrie
M. Mohamed Sympara	Ministre des PME/PMI
FARE : Fonds Auto-Renouvelable pour l'Emploi	M. Kadioké
M. Mamadou Nadjo et M.Coulibaly	FIDA :
M. Hamata Hanta Faye	Comité Multi-Sectoriel de l'énergie

M. Samassekou	Entreprise KATENE
M. Traoré	ECO'Home (Investissement AREED
M. Doumbia	USISS (Investissement AREED
M. Diarra	Mali Folkecenter
M. TOGOLA	Mali Folk ecenter
Senegal	
Mr Cheikh WADE	Ministère de l'Energie et des Mines
Mr. Mamadou DIOUF	Directeur des PME/PMI
Mme Awa Paye GUEYE	Fonds National
Diatourou NDIAYE	Ministère de l'Economie et des finances
Mr Gueye –	ECOBANK
Mr BALDE	Ministère des Collectivités locales
	Ministère de l'agriculture et de l'hydraulique
Mr Aliou NIANG	Agence Sénégalaise d'Electrification Rurale
Mme NDIAYE	Agence de Développement et d'Encadrement des Petites et Moyennes Entreprises (Service de l'Information-ADEPME)
Mr Baro	Consultant
Mr NDOYE	Ministère du Plan et du

	Développement Durable
Mr Ibrahim Thioye	Ministere des collectivites locales
Yvonne Faye Williams	FOPEN
Mr Stamm	USAID
Mr Souleye Wade	APIX
Mr Mamadou Ndiaye	Direction de l'Energie
Mr CORREA	Banque Islamique du Sénégal
Mr Louis SECK	CIMES
Mr Pape Alassane Deme	PROGEDE
Mr Sidiky DIOP	Directeur des projets FNPJ
Mr Secou Sarr	ENDA Tiers Monde – Energy Programme
Ghana	
Rami Ali Kara	AREED Entrepreneur
Clara Mankatta	AREED Entrepreneur
Dr. Asiedu	Ministry of Private Sector Development
Kola Sofola	Ministry of Private Sector Development
Catherine Adu-Boadi	Ministry of Women and Children Affairs
Mr. Clement Abavana	Ministry of Energy
¨ Wisdom Ahiataku Togobo	Ministry of Energy
Cleveland Thomas	USAID
Mr. Cletus Kosiba	Association of Ghana Industries
Emmanuel N.B. Abbey	GLADYManuel Limited
Mr. Baeka Dawarnoba	NBSSI

Christy Ahenkora Banya	UNDP
Jacob Ainoo-Ansah	UNIDO
Dr. Dua Yentumi	
Mrs. Yvonne Wallace Bruce	UNDP
Nana Esi Ghansah	Standard Chartered –SME Banking
Charles Amquah	Standard Chartered
Harriette Amissah Arthur	Director, KITE
Frank Atta-Owusu	Programme Officer - KITE
Tanzania	
Mr. Invocavit Swai,	Director of Policy and Planning - Ministry of Energy and
Eng. N. Mwihava; Assistant Commissioner Renewable Energy	Ministry of Energy and Minerals
Ms A. Mwasha	, Assistant Director, National Strategy for Growth and Poverty Reduction Strategy - VPO MEM Bldg
Mrs. J.Lema,	Growth Strategies Division, Planning and Privatization Commission (PPC)
Mr. Mike Laiser,	Director General, Small Industries Development Organisation (SIDO),
Ms Karlijn Arkesteijn,	Managing Director,

	Umemejua Limited (Energy SME company)
Mrs. Anne – Lie Anderson	SIDA
Felistas Coutinho	FINCA Tanzania,
Peter Gatherole	Biomass Energy Tanzania Limited
Rex Haylock	Biomass Energy Tanzania Limited
Hans Graber	Tanga Cement
Immanuel W. Muro	Centre for Sustainable Development Initiatives
Mr. Lyale	Akiba Commercial Bank Limited
Estomih Sawe	TATEDO
Oscar Lema	TaTEDO
Zambia	
James Simoya	Ministry of Agriculture and Co-operatives
Maxwell D. Sicuhula	Zambia Chamber of Small and Medium Business Associations
Michael M. Mulasikwanda	Department of Energy
Alistair Bwembya Kambobe	Ministry of Commerce Trade and Industry
Allan A. Phiri	National Technology Business centre
Mrs Kalobwe Chikot Chansa	Small Enterprise Development Board (SEDB)
James Manda	Energy Regulatory

	Board (ERB)
Charles Mulenga	Department of Energy
Muyoba Macwani	Njuwe Consultants Ltd.
Mwananyanda M. Lewanika	National Institute for Scientific and Industrial Research
Natasha Machila	Ministry of Commerce and Trade
Professor Francis Yamba	CEEEZ
Lilian	CEEZ
Mr Mulainda	Department of Energy
Oscar Kalumaina	Department of Energy
Mr Francis Yamba	CEEZ

Country Partners[111]

UNEP's Energy Programme addresses the environmental consequences of energy production and use, such as global climate change and local air pollution, and is concerned with renewable energy, energy efficiency, transport, energy finance and policy issues.

UNEP Risoe Centre (URC) is a collaborating centre of the United Nations Environmental Programme (UNEP) based at RISO National Laboratory in Denmark.

E+Co: Energy Investment Service. E+Co is an organisation that provides enterprise development services and seed capital to energy enterprises in developing countries.

ENDA Energy is a branch of the organisation ENDA Tiers Monde. Their work focuses on energy use and management in the African context, with an emphasis on the linkages between energy and development. ENDA represents AREED in Senegal.

Kumasi Institute of Technology and Environment (KITE) contributes towards sustainable energy and industrial development based on technological capabilities, implements action research projects and undertakes feasibility studies and project management and evaluation. KITE represents AREED in Ghana.

Mali-Folkcenter is an independent NGO, cooperating with the Malian government, local and international NGOs and international development agencies to promote sustainable development in the rural areas of Mali and other West African countries. Mali-Folkcentre represents AREED in Mali.

Centre for Energy, Environment & Engineering Zambia Ltd (CEEEZ) is a non-governmental organisation collaborating with Government and various institutions, that investigates, analyses and makes useful conclusions and policy recommendations on energy, environment and engineering concerns, and also carries out studies, research and development, consultancy and training in those areas. CEEEZ represents AREED in Zambia.

Tanzania Traditional Energy Development and Environment Organization (TaTEDO) is a local NGO responsible for developing and promoting Renewable Energy Technologies in Tanzania. TaTEDO is a coalition of individuals, professionals, artisans, farmers, Community-Based Organisations (CBOs) and micro enterprises involved in the development and promotion of renewable energy systems for enhancing sustainable environment and socio-economic development of communities.

[111] Drawn from, African Rural Energy Enterprise Development (AREED): a mid-term review of programme design and implementation strategy – Final Report, prepared for UNEP Collaborating Centre on Energy and Environment , April 2003

Current AREED Investments

KBPS is a Zambian company receiving AREED enterprise development support and financing (in the form of a $75,300 loan) to produce charcoal briquettes from sawmill waste. The company's expansion plan includes the construction of fifteen efficient brick kilns and the development of a marketing and distribution network. Using a waste product for fuel and a conversion process twice as efficient as traditional methods, KBPS is proving that a clean energy enterprise can both solve an environmental problem and be good business.

AB Management (Ghana) is building a new business to address the poor power quality of many African electricity networks. Using an AREED $122,400 financing package (advanced in 2001) and enterprise development support from AREED local partner KITE, AB Management is creating a market for 'power factor' correction equipment in Ghana. The first round of 27 installations was fully subscribed by mid-March 2002, while cash inflow from credit arrangements with customers began in April 2002.

Chavuma Waterfalls Venture (CWV), Zambia, received a $22,300 loan from AREED to expand its business of sourcing, marketing, installing and interval maintenance of control gear for heavy-duty electric motors (otherwise called 'Powerboss'). Initial marketing efforts are directed towards users around the Lusaka area, including firms engaged in manufacturing, commercial export farming, tourism, trading, mining, physical infrastructure, and water and energy supplies. Ultimately, the company anticipates expanding its market area to the other nine Zambian provinces as the organization grows. The primary selling point for the control gear is electricity costs savings. CWV has executed an exclusive distributor's agreement with Somar International, United Kingdom.

Ubwato Enterprises' (Zambia) core business is the manufacture and sale of energy efficient Jiko stoves, a low cost, clean energy technology with major environmental benefits, including reduced wood-fuel consumption and air pollution. The company is using an AREED loan of $15,700 (the total loan amount is $41,000) and support from local partner CEEEZ to implement a marketing strategy involving a commissioned sales force.[112] As with most companies AREED deals with, the support provided was not focused on refining the technology, but rather on commercialisation and market expansion.

Gladymanuel Trading Enterprise Ltd (GTEL), Ghana, is a well-established venture, which has been in operation since 1999. Its core business is selling compact fluorescent products (CFLs) and mobile PV power back-up systems. The company has established a solid customer base and is now experiencing growth. AREED provided GTEL with a $70 000 loan.

Anasset Company Ltd, Ghana, is a venture with the core business of selling liquid petroleum gas (LPG). AREED assistance is a $38 000 loan to assist in the growth of the company to the next level. Anasset has short-term plans of expanding and distributing gas to rural areas.

AME is building a business servicing solar hot water systems in Senegal and signed a loan agreement with AREED during the first quarter of 2002. The total loan was CFA 41,563. The first part of the loan has been advanced to help AME build a portfolio of service contracts, with the remainder of the loan contingent on the success of this effort.

Vent Eau pour la Vie (VEV), Senegal, is a small company that has found a market niche in

112 A first disbursement (of $15,855) was provided to purchase 20 bicycles and trailers, implement the support marketing activities and provide a small amount of working capital. A second disbursement of US$15,000 will be used to upscale the production facilities, purchase a further 20 bicycles and trailers and implement further supportive marketing activities. The third and final disbursement ($10,000) – when sales figures reach the 800 units per month mark – will see the final procurement of the plant and machinery required as well as another 20 bicycles and trailers (Agbemabiese 2003).

the repair and maintenance of wind-powered water pumps in Senegal. There is a good market for this service, as about 90% of such pumps in the country are not working. Although the company has operated profitably during the last eight years, a lack of working capital has limited the company's capacity to stock inventory and therefore to provide an efficient maintenance service. With a CFA 17,831 AREED loan and enterprise development support from AREED local partner ENDA-Energie, VEV is expanding its inventory to shorten service times and will soon begin offering short-term credit to qualified clients. Together, these services should help to ensure that most wind pumps in Senegal become, and remain, operational.

USISS, Mali is an example of how an enterprise development strategy can transform a technology R&D project into a fully commercial operation. The company preserves meat, mangoes and onions in Mali using a solar drying technology developed through a former German Technology Cooperation (GTZ) project. In a country where food preservation is essential and refrigeration minimal, the CFA 19 665 AREED loan and enterprise development support from AREED local partner Mali-Folkcentre will enable USISS to scale-up its business through the purchase of additional solar dryers and the implementation of a marketing strategy.

Bagani, Mali, is a new business, registered as a GIE (small for profit). It was provided with a loan of CFA15 170 to build, own and operate two multi-functional platforms in the Kita area of Mali. Powered on Jatropha oil, derived from Pourghere nuts, the platform can peel and grind various cereals and grains, work typically done manually with a mortar and pestle, as well as charge batteries. When the Pourghere nuts are pressed, in addition to oil, they produce two viable by-products. The first is sediment used for making soap and the second is a ‘torteau’ or cake that is sold to farmers for fertilizer. This is the first commercial business and investment in a multi-functional platform in Africa.

Biomass Energy Tanzania Ltd (BETL) will source, transport and supply biomass waste to meet the thermal heating needs of the Tanga Cement Company Limited (TCCL). BETL has requested start up assistance from AREED in the form of a $50,000 working capital loan. The loan will enable BETL to service the demands of the TCCL contract and establish itself as a key provider of biomass waste to industries in fuel switching applications. TCCL’s intention is to exclusively purchase up to 1000 tons of biomass waste from BETL on a monthly basis.

TSADC Sun Bakeries Ltd is a newly established Zambian company with the core activity of establishing financially viable bakeries, which utilize solar energy, to produce fresh wheat products in the form of bread and buns for sale to local communities. The short-term goals for TSADC include the development and testing of a financially viable business model for rural bakeries using the Villager Sun Oven, a proven form of solar cooking. In the long term, large-scale replication of these models to other rural sites in Zambia is envisioned.